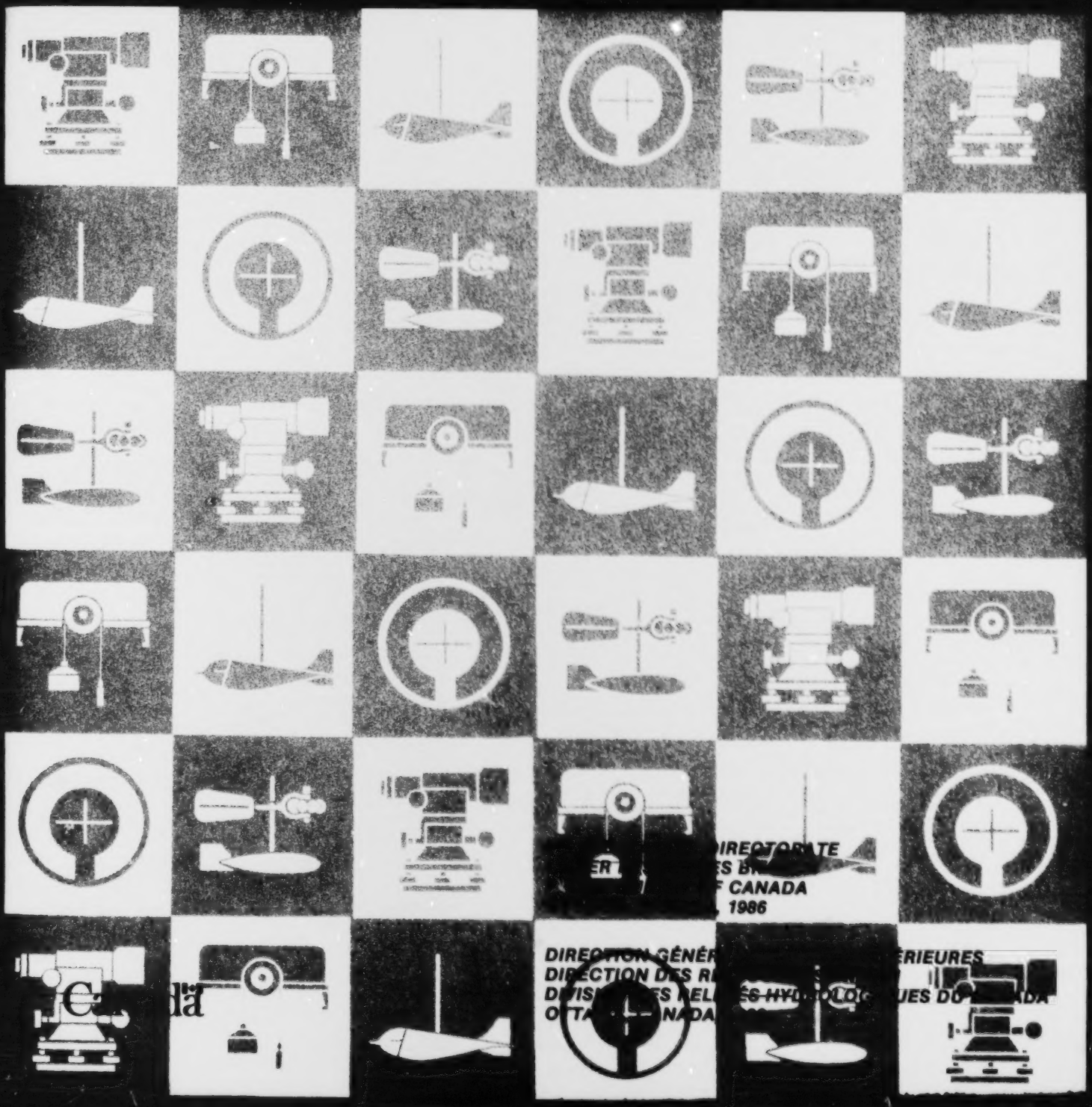
Sediment Data

Manitoba

Données sur les sédiments

1984



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Données sur les sédiments

1984

INLAND WATERS DIRECTORATE
WATER RESOURCES BRANCH
WATER SURVEY OF CANADA
OTTAWA, CANADA, 1986

DIRECTION GÉNÉRALE DES EAUX INTÉRIEURES
DIRECTION DES RESSOURCES EN EAU
DIVISION DES RELEVÉS HYDROLOGIQUES DU CANADA
OTTAWA, CANADA, 1986

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PREFACE

This publication was prepared by personnel of the Sediment Survey Section, Water Survey of Canada Division, under the direction of the Director, Water Resources Branch, Department of the Environment, Ottawa.

The basic data were collected and compiled under the supervision of the Regional Chief of the Water Resources Branch at Winnipeg, Manitoba.

The co-operation received from provincial agencies and from other organizations is gratefully acknowledged.

PRÉFACE

Le groupe d'étude des sédiments de la Division des relevés hydrologiques du Canada, sous l'autorité du directeur des Ressources en eau du ministère de l'Environnement, à Ottawa, a préparé la présente publication.

Le chef régional de la Direction des ressources en eau, à Winnipeg (Manitoba), a supervisé la collecte et la compilation des données de base.

Nous remercions vivement les organismes provinciaux, ou autres, pour leur collaboration.

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INTRODUCTION

The Water Resources Branch of the Department of the Environment herein presents for the 1984 calendar year, the results of the sediment survey investigations conducted in Manitoba by the Water Survey of Canada.

Data on the character and quantity of fluvial sediments provided by sediment survey investigations are intended for use in studies of water quality, environmental impacts, river processes and behaviour, and engineering design.

General introductory information on the sediment survey is included in this publication. Similar information for the associated hydrometric survey is given in the regular publications containing surface water data.

Details on individual stations and related records, as well as recent data that have not yet been published, may be obtained upon application to:

Regional Chief,
Water Resources Branch,
Department of the Environment,
521 Federal Building,
269 Main Street,
Winnipeg, Manitoba.
R3C 1B2

or to the Director, Water Resources Branch, Department of the Environment, Ottawa, Ontario, K1A 0E7.

INTRODUCTION

Dans la présente publication de la Direction des ressources en eau du ministère de l'Environnement, on trouvera les résultats des études des sédiments effectuées dans les cours d'eau du Manitoba par la Division des relevés hydrologiques du Canada au cours de l'année civile 1984.

Les données recueillies sur la nature et l'importance de la charge solide dans les cours d'eau doivent servir aux études portant sur la qualité des eaux, les incidences environnementales, les processus fluviaux, le comportement des cours d'eau et la conception de projets.

La presente publication contient des renseignements généraux préliminaires sur les études des sédiments. Des renseignements semblables sur les études hydrométriques connexes sont contenus dans les publications régulières présentant des données sur les eaux de surface.

On peut obtenir des renseignements supplémentaires sur les stations et les relevés, ainsi que des données récentes non encore publiées, en s'adressant au:

Chef régional
Direction des ressources en eau
Ministère de l'Environnement
521, Édifice fédéral
269, rue Main
Winnipeg (Manitoba)
R3C 1B2

ou au directeur des Ressources en eau, ministère de l'Environnement, Ottawa (Ontario), K1A 0E7.

SCOPE OF PUBLICATION

Descriptive information about sediment stations is given. This refers to the Location, Latitude and Longitude, Drainage Area and whether the flow is Natural Flow or Regulated Flow (the year that regulation began is given, if known), Type of Gauge and the Total Suspended Sediment Load in Tonnes for the Period of Record is also included. International Gauging Stations are identified and the names of co-operating agencies who supply data are given; unusual conditions at the sediment station that could effect the data results are explained under "Remarks".

This publication contains data on streamflow, instantaneous suspended sediment concentration; daily mean suspended sediment concentration; daily suspended sediment loads; dissolved solids concentration; load summary; particle-size distribution of suspended sediment in percent sand, silt and clay; bed load and bed material; water temperature when samples were collected; type of sampler and the single sampling vertical location.

A historical sediment data summary includes such information as Sampled Concentration Maximum and Minimum; Suspended Sediment Load Maximum Daily and the Total for Period. The Period of Record and the Type of Operation for each year of data are also given. A Summary for the Months of record gives the Period of Record Mean, the Mean for Period of Record and the Standard Error of Mean as a percent.

ORGANIZATION AND HISTORY OF SEDIMENT SURVEYS IN CANADA

In Canada, investigations of sediment transported by streams were first undertaken by individual organizations or agencies in 1948, to meet the needs of federal and provincial agencies for assessment of particular projects. Although the investigations were extended to meet expanding needs after 1948, it was not until 1961 that a systematic survey was undertaken by the Water Resources Branch.

The sediment survey program has the following objectives:

(1) Collection and provision of data related to sediment transport in Canadian rivers for applications in water resource engineering, water quality and environmental studies.

(2) Provision of information and advice related to sediment transport.

(3) Assessment, improvement and standardization of equipment and techniques used in Canada's sediment survey program.

PORTÉE DE LA PUBLICATION

Des données descriptives sont présentées sur les stations d'étude des sédiments. Elles concernent leur emplacement, leurs latitude et longitude, leur bassin versant, la nature de débit (naturel ou régularisé, avec indication, le cas échéant, de l'année où la régularisation a commencé, si elle est connue), le type d'instrument de mesure employé et le débit total des sédiments en suspension (en tonnes) pour la période de relevé. Les stations internationales de jaugeage sont indiquées, ainsi que le nom des organismes qui fournissent les données. Des explications concernant des conditions exceptionnelles qui ont pu influer sur les résultats sont présentées dans la partie «Remarques».

Cette publication renferme des données sur le débit des cours d'eau, les concentrations instantanées de sédiments en suspension, les concentrations journalières moyennes de sédiments en suspension, les débits journaliers de sédiments en suspension, les concentrations de matières dissoutes, les débits solides totaux (résumés), la granulométrie des sédiments en suspension exprimée en pourcentage de sable, de limon et d'argile, le charriage et les matériaux du lit, la température de l'eau au moment de l'échantillonnage, le type d'échantillonneur employé et l'emplacement des verticales de prélèvement d'échantillons uniques.

Un résumé des données historiques sur les sédiments est inclus. On y trouve divers renseignements comme les concentrations maximale et minimale mesurées, le débit journalier maximal des sédiments en suspension et le total pour la période. La période de relevé et le type d'exploitation des stations sont indiqués pour chaque année. Dans un résumé pour les mois de relevé, on donne la moyenne pour chaque période et pour l'ensemble des périodes de relevé ainsi que l'erreur-type de la moyenne, en pourcentage.

ORGANISATION ET HISTORIQUE DES ÉTUDES DES SÉDIMENTS AU CANADA

Au Canada, les études dans ce domaine ont débuté en 1948 en réponse aux besoins exprimés par certains organismes fédéraux et provinciaux pour l'évaluation de projets donnés et étaient le fait d'organismes privés. Bien que les études se soient poursuivies après 1948 pour satisfaire aux besoins accrus, ce n'est qu'en 1961 que la Direction des ressources en eau les a entreprises de façon systématique.

Les buts de ces études sont de:

(1) réunir et produire des données sur les transports solides dans les cours d'eau canadiens, données dont on peut avoir besoin pour des études concernant l'environnement, la qualité des eaux et la conception de projets portant sur les ressources en eau.

(2) produire des informations concernant les transports solides.

(3) évaluer, améliorer et uniformiser le matériel et les techniques employés dans le programme d'étude des sédiments au Canada.

PUBLICATION OF SURFACE WATER AND SEDIMENT DATA

Sediment data have been published in a variety of formats since the beginning of the Sediment Survey Program.

During the years 1948 to 1960, some sediment data were collected for several Prairie rivers to meet the needs of particular projects. The first Water Resources Paper series containing sediment data incorporated a selection of these data and also data for part of the year ending September 30, 1961, at stations established for the continuing program. The second issue was a biennial publication covering only the continuing program for the 1962 and 1963 water years. All subsequent editions titled *Sediment Data Canadian Rivers* have been published annually. The sediment data since 1978 have been presented entirely in the International System of Units (SI).

Commencing with 1984, the *Sediment Data* are presented and published in a new format wherein Canada is divided into eight regions. The provinces each represent a separate region except for New Brunswick, Newfoundland, Nova Scotia and Prince Edward Island, which together form the Atlantic Provinces region, and the Yukon and Northwest Territories which make up another. The publications are identified by the province or territories covered and the year in which the data were collected. These data are published annually on a calendar-year basis and the stations are listed alphabetically.

The first edition of a *Sediment Data Reference Index* was published for data to 1972. It contains a tabulation of locations in Canada where sediment data were collected by the Water Survey of Canada. The index has been subdivided alphabetically by province or territory, with sediment survey stations also listed alphabetically. Commencing with the 1978 publication, data are presented in the International System of Units (SI) and will continue to be published biennially. The latest edition supersedes all previous editions because it contains any corrections or additions since the last publication.

The first edition of a new publication series titled *Historical Sediment Data Summary for Canadian Rivers* was produced for data to 1974. This publication contains a summary of historical monthly and annual mean suspended sediment load, and annual extremes of daily suspended sediment concentration and loads and total annual suspended load. Commencing with the 1978 publication, data are presented entirely in the International System of Units (SI). This publication has been discontinued, as much of the information is now included in the new annual *Sediment Data* publication.

PUBLICATION DES DONNÉES SUR LES EAUX DE SURFACE ET LES SÉDIMENTS

Depuis le début du programme d'étude des sédiments, la présentation des données a varié.

De 1948 à 1960, on a recueilli des données pour plusieurs cours d'eau des Prairies en prévision de la réalisation de certains projets. La première publication contenant des données sur les sédiments a paru dans la série intitulée *Water Resources Paper*; elle présentait un choix de ces données ainsi que des données recueillies en 1961 avant le 30 septembre à des stations établies pour la réalisation du programme permanent. La deuxième publication a porté sur les données recueillies dans le cadre du programme au cours des années hydrologiques 1962 et 1963. Par la suite, les données ont été publiées annuellement sous le titre *Données sur les sédiments - rivières canadiennes*. Depuis 1978, les données sont exprimées en unités du Système international (SI).

En 1984, la présentation des données a été modifiée. Le Canada a été divisé en huit régions, une région pour chaque province, sauf le Nouveau-Brunswick, Terre-Neuve, la Nouvelle-Écosse et l'Île-du-Prince-Édouard qui, ensemble, forment la région des provinces de l'Atlantique, et les Territoires du Yukon et du Nord-Ouest, qui forment une autre région. Les publications sont nommées selon la région couverte et l'année des données (année civile). Ces publications sont annuelles. Les stations y sont présentées par ordre alphabétique.

Un *Index de référence des données sur les sédiments* est publié. La première édition portait sur les données disponibles jusqu'en 1972. Les emplacements où des données sur les sédiments ont été recueillies au Canada par la Division des relevés hydrologiques y sont présentés sous forme de tableau. L'*Index* est subdivisé selon l'ordre alphabétique par province ou territoire, et les stations de mesure des sédiments sont classées par ordre alphabétique. À partir de 1978, les données sont exprimées en unités du Système international (SI). L'*Index* est publié tous les deux ans; l'édition la plus récente annule toutes les éditions antérieures, car elle renferme toutes les corrections et mises à jour effectuées depuis la dernière parution.

Une autre série de publications a porté le titre *Sommaire chronologique des données sur les sédiments de rivières canadiennes*. La première édition renfermait les données disponibles jusqu'en 1974. Cette série présentait un résumé donnant les moyennes mensuelles et annuelles historiques du débit des sédiments en suspension, les valeurs annuelles extrêmes de la concentration journalière et du débit journalier des sédiments en suspension et le débit annuel total des sédiments en suspension. À partir de 1978, les données ont été présentées en unités du Système international (SI). Cette série a été abandonnée, car une bonne partie de l'information est maintenant contenue dans la nouvelle publication annuelle intitulée *Données sur les sédiments*.

COLLECTION AND PROCESSING OF BASIC DATA

1. *Equipment and Instrumentation*

The sediment survey program of the Water Resources Branch is conducted in cross sections on rivers selected specifically for the sediment survey or for the hydrometric survey. Certain cross sections are located at traffic bridges, while others are equipped with cableways, or automatic pump samplers.

The following sediment samplers have been used in the sediment survey program:

(a) Depth-integrating suspended sediment wading-type hand sampler, USDH-48, used on small streams or during winter periods.
(b) Depth-integrating suspended sediment sampler, USDH-59, used as a handline suspension for small and medium size streams.
(c) Depth-integrating suspended sediment samplers, USD-49, and USD-74, used on a reel suspension for medium and large streams whose depths are less than five metres.

(d) Point-integrating suspended sediment samplers, USP-61, USP-61-A1, USP-63, and USP-72, used for point-integrating sampling, or depth-integrating sampling if the depth is over five metres, or in a cross section with a very high velocity.
(e) Automatic pump sampler is an automatic pumping system permitting unattended collecting and bottling of individual water samples pumped from a fixed point in a stream. This sampler is normally installed at isolated locations where otherwise no data would be available during ice break-up or peak periods.

(f) Bed material sampler, USBM-54, used on large or deep streams or on those streams with hard-packed streambeds.

(g) Bed material sampler USBMH-60, used on some large or deep streams or on those streams with soft-packed streambeds.

(h) Bed material sampler USBMH-53 used on some small or shallow streams.

(i) Lane bed material sampler, a drag-type sampler used on small streams or those with soft streambeds.

2. *Hydrometric Surveys*

The hydrometric survey includes the standard procedures for observations of water levels, streamflow measurements, water surface slope determinations if required, and observations of water temperature. The streamflow measurements are made in conjunction with the sediment load measurements and conform to the accepted standards of the regular hydrometric survey.

3. *Sediment Sampling Program*

The following is a summary of the elements associated with the Sediment Sampling Program:

(a) Periodic measurement of suspended sediment load by the

COLLECTE ET TRAITEMENT DES DONNÉES DE BASE

1. *Matériel*

L'étude des sédiments réalisée par la Direction des ressources en eau porte sur des sections transversales de cours d'eau choisis spécialement à cette fin ou pour les relevés hydrométriques. Certaines sections sont situées sous un pont, d'autres sont accessibles par téléphérique, ou sont étudiées à l'aide d'un échantillonneur sous pression.

On a utilisé les échantillonneurs suivants:

(a) L'échantillonneur intégrateur selon la profondeur, type simple, USDH-48, employé dans les cours d'eau peu profonds ou en hiver;
(b) L'échantillonneur intégrateur selon la profondeur USDH-59, utilisé comme une ligne dans les cours d'eau petits et moyens;
(c) Les échantillonneurs intégrateurs selon la profondeur USD-49 et USD-74 fixés au bout d'une corde s'enroulant autour d'un moulinet et employés dans les cours d'eau gros ou moyens dont la profondeur est inférieure à cinq mètres;
(d) Les échantillonneurs intégrateurs USP-61, USP-61-A1, USP-63 et USP-72, employés ponctuellement ou sur toute la verticale, et utilisés lorsque la profondeur est supérieure à cinq mètres ou dans les sections transversales qui connaissent un débit très élevé;
(e) Un échantillonneur automatique permettant le prélèvement en bouteilles, sans surveillance, d'échantillons uniques d'eau obtenus à l'aide d'une pompe en un point précis d'un cours d'eau; il est ordinairement installé dans un endroit isolé où aucune donnée ne pourrait être obtenue autrement au cours de la débâcle ou des périodes de débit de pointe;
(f) L'échantillonneur USBM-54 employé pour le prélèvement d'échantillons des matériaux du lit dans les cours d'eau importants ou profonds ou dans les cours d'eau dont le fond est dur;
(g) L'échantillonneur USBMH-60 employé pour le prélèvement d'échantillons des matériaux du lit dans certains cours d'eau importants ou profonds, ou dans les cours d'eau dont le fond est meuble;
(h) L'échantillonneur USBMH-53 employé pour le prélèvement d'échantillons des matériaux du lit dans certains cours d'eau petits ou peu profonds;
(i) La drague employée pour le prélèvement d'échantillons des matériaux du lit dans de petits cours d'eau ou dans des cours d'eau dont le fond est meuble.

2. *Relevés hydrométriques*

Le relevé hydrométrique comprend, entre autres, l'observation de la hauteur des eaux, la mesure du débit de l'eau, la détermination de la pente de la ligne d'eau, si nécessaire, ainsi que l'observation de la température de l'eau. Les mesures du débit de l'eau et du débit des sédiments se font conjointement, suivant les méthodes acceptées.

3. *Échantillonnage des sédiments des cours d'eau*

L'échantillonnage comporte, en gros, les éléments suivants:

(a) La mesure périodique du débit des sédiments en suspension par la méthode d'intégration sur toute la profondeur

depth-integrating method for determining the average suspended sediment concentration in the cross section.

(b) Single suspended sediment samples at a selected vertical for determining the sediment concentration for the days when suspended sediment load measurements are not taken.

(c) Limited measurement of suspended sediment load by the point-integrating method for checking depth-integrated measurements and for determining particle-size distribution in the cross section.

(d) Sampling of bed material for determining particle-size distribution.

(e) Periodic measurement of bed load.

The following is a brief explanation of the elements listed above:

(a) *Suspended Sediment Load by Depth-Integrating Method*: Measurements are made by the depth-integrating method to determine the suspended sediment load carried in the entire cross section of a stream, the average suspended sediment concentration in the cross section, and the size distribution of the sediment particles. It is known that the concentration of suspended sediment tends to increase from the water surface to the streambed and could vary from streambank to streambank.

When making suspended sediment equal-discharge-increment (EDI) measurements, the stream cross section is divided into at least five equal-flow portions and a representative suspended sediment sample is collected from each portion. For each part of the cross section, the suspended sediment load (r) may then be computed by multiplying the flow (q) by the suspended sediment concentration (c):

$$r = q\ c$$

The suspended sediment load (R) for the cross section may be computed by adding the sediment loads for the five equal-flow portions:

$$R = r\ n = q_1c_1 + q_2c_2 + \dots + q_nc_n$$

The depth-integrating method of sampling is used to measure the suspended sediment concentration. This method is based on the premise that the sampler fills at a rate proportional to the velocity of the approaching flow, and that by traversing the depth of a stream at a uniform speed, the sampler will receive a portion of water sediment mixture at every point in the vertical.

(b) *Single Suspended Sediment Samples at a Selected Vertical*: Single suspended sediment samples, consisting of two bottles each, are collected routinely using the depth or point-integrating samplers at a permanently fixed vertical in a cross section. During periods of very heavy sediment concentration, two or three single sediment samples may be taken per day, while during periods of low concentration, one single sediment sample may only be taken every few days. During extremely low flow periods, the sampling may be limited to one single sample in several weeks or months.

(c) *Suspended Sediment Load by Point-Integrating Method*: A limited number of suspended sediment load measurements are made by the point-integrating method. These measurements are included in the program (a) to check by comparison the "measured" sediment loads obtained by the depth-integrating method with the suspended sediment loads by the point-integrating method and (b) to obtain samples from which to determine particle-size distribution

pour la détermination de la concentration moyenne dans une section transversale;

(b) Le prélèvement d'échantillons uniques des sédiments en suspension selon une verticale choisie, afin de determiner la concentration des sédiments les journées où le débit des sédiments en suspension n'est pas mesuré;

(c) Un nombre restreint de mesures du débit des sédiments en suspension avec intégration en un point précis d'un cours d'eau, afin de vérifier les résultats des mesures avec intégration selon la profondeur et afin de déterminer la granulométrie des particules de sédiments dans une section transversale d'un cours d'eau;

(d) L'échantillonnage des matériaux du lit afin d'en déterminer la granulométrie;

(e) La mesure périodique du charriage.

Voici une brève description des éléments susmentionnés.

(a) *Mesure du débit des sédiments en suspension par intégration selon la profondeur*: La méthode permet de déterminer le débit des sédiments en suspension traversant toute une section transversale d'un cours d'eau, la concentration moyenne des sédiments en suspension dans la section transversale et la granulométrie des sédiments en suspension. C'est un fait connu que la concentration des sédiments en suspension augmente généralement avec la profondeur et qu'elle peut varier d'une rive à l'autre d'un cours d'eau.

Avec la méthode d'incréments de débits égaux (IDE), la mesure du débit des sédiments en suspension se fait en divisant une section transversale d'un cours d'eau en au moins cinq tranches où le débit est égal et en prélevant un échantillon représentatif dans chacune d'elles. Le débit des sédiments en suspension (r) pour chaque tranche se calcule en multipliant le débit (q) par la concentration des sédiments en suspension (c):

$$r = q\ c$$

Le débit des sédiments en suspension (R) pour la section transversale est la somme des débits des sédiments des cinq tranches:

$$R = r\ n = q_1c_1 + q_2c_2 + \dots + q_nc_n$$

La méthode par intégration sur toute la profondeur est employée pour mesurer la concentration des sédiments en suspension. Elle suppose que l'échantillonneur se remplit à un rythme proportionnel au débit de l'eau et qu'en étant déplacé à une vitesse uniforme sur toute la verticale, il reçoit une partie du mélange eau-sédiments à tous les points de celle-ci.

(b) *Prélèvement d'échantillons uniques de sédiments en suspension sur une verticale choisie*: De tels échantillons, constitués chacun de deux bouteilles, sont prélevés régulièrement à l'aide d'appareils intégrateurs, selon la profondeur ou ponctuels, sur une verticale permanente d'une section transversale. Lorsque la concentration des sédiments est très forte, deux ou trois échantillonnages peuvent être effectués chaque jour, alors qu'un seul échantillon peut être prélevé à quelques jours d'intervalle lorsqu'elle est faible. Au cours des périodes où le débit est extrêmement faible, l'échantillonnage peut être limité à un échantillon toutes les quelques semaine ou tous les quelques mois.

(c) *Mesure du débit des sédiments en suspension par la méthode ponctuelle*: Un nombre limité de mesures du débit des sédiments en suspension sont faites avec cette méthode. On y a recours a) pour vérifier les valeurs du débit mesurées au moyen de la méthode précédente et b) pour obtenir des échantillons en vue de déterminer la granulométrie des sédiments en divers points de la

at different points in the cross section. The point-integrating sediment loads are computed by graphical methods.

The relationship between the suspended sediment concentration of the single vertical samples and the average concentration in the cross section determined from the suspended sediment load measurements is established for some stations. Using this relationship, the sediment concentrations of the single vertical samples are adjusted to reflect the average suspended sediment concentration in the cross section. These average sediment concentrations in the cross sections are plotted, and a smooth curve is drawn through the points to obtain a concentration graph. This graph represents the average suspended sediment concentration for the period of record. The daily mean concentrations are determined by automated procedures using a digitizer interfaced with a Digital minicomputer.

The daily suspended sediment loads are computed on the basis of stream discharges and the collected suspended sediment concentrations. The daily suspended sediment loads are expressed in tonnes per day and are obtained by multiplying the daily mean sediment concentration (mg/L), by the daily mean discharge (m^3/s), and the conversion factor, 0.0864.

(d) *Bed Material Sampling*: In a cross section, bed material samples are usually taken in the same sampling verticals as the suspended sediment samples. Often, additional bed material samples are collected at the water edge, the extreme water level or at other points in the cross section. The total number of bed material samples taken in a cross section usually varies between five and nine.

(e) *Bed Load Measurement*: There are several methods available for measurement of bed load (volumetric method, measurement by samplers, method of tracers, method of constricted cross section, study of sound waves, etc.). The measurement methods should be selected in accordance with river regime.

4. *Total Sediment Load*

Sediment transport may be divided into two categories: sediment maintained in suspension in the stream (suspended load), and sediment being carried along the streambed (bed load). To measure the total sediment load, each of these must be measured separately and then totalled. The total sediment load was not computed for this publication.

5. *Sediment Survey Laboratories*

The Water Resources Branch maintain sediment survey laboratories in New Westminster, British Columbia; Regina, Saskatchewan; Guelph, Ontario; and Moncton, New Brunswick. The laboratories are equipped to perform the following analyses:

(a) determination of sediment concentration by (1) filtration method, (2) evaporation method and (3) determination of total dissolved solids by evaporation method.
(b) particle-size distribution analysis by (1) bottom withdrawal tube method, (2) sieving and (3) hydrometer method.

Determination of the sediment concentration by the evaporation method is carried out by evaporating the water from the settled sediment sample, with the results being corrected for dissolved solids. The quantity of dissolved solids is determined by evaporating a portion of the decanted water of a sample. In the filtration method, the suspended sediment concentration of water samples is determined by utilizing Gooch crucibles with a Reeve Angel 934AH filter and a Millipore AP20 prefilter and a vacuum system.

section transversale. Cette méthode fait appel à des graphiques pour le calcul du débit des sédiments.

Le rapport entre la concentration des sédiments en suspension dans les échantillons prélevés sur une seule verticale et la concentration moyenne dans la section transversale, telle que déterminée à partir des mesures du débit des sédiments en suspension, est établi pour quelques stations. Il permet de corriger les concentrations mesurées à une seule verticale de manière à donner la concentration moyenne dans la section transversale. Les concentrations moyennes ainsi déterminées sont reportées sur un graphique, et une courbe lisse passant par les points marqués est tracée. Le graphique obtenu représente la concentration moyenne des sédiments en suspension pour la période de relevé. Les concentrations moyennes quotidiennes sont déterminées automatiquement à l'aide d'un convertisseur analogique-numérique relié à un mini-ordinateur numérique.

Les valeurs journalières du débit des sédiments en suspension sont calculées à partir du débit du cours d'eau et des concentrations des sédiments en suspension recueillis. Elles sont exprimées en tonnes par jour. On les détermine en multipliant la concentration moyenne journalière des sédiments (mg/L) par le débit moyen journalier (m^3/s) et par un facteur de conversion approprié, 0.0864.

(d) *Échantillonnage des matériaux du lit*: Dans une section transversale, les échantillons des matériaux du lit sont ordinairement prélevés aux mêmes verticales que ceux des sédiments en suspension. Souvent, des échantillons supplémentaires sont pris près des rives, là où le niveau d'eau est extrême et à d'autres points de la section transversale. Leur nombre total pour une section donnée varie ordinairement entre cinq et neuf.

(e) *Mesure du charriage*: La mesure peut se faire par plusieurs méthodes (méthode volumétrique, mesure à l'aide d'échantillonneurs, méthode des traceurs, méthode de la section transversale rétrécie, étude des ondes sonores, etc.). Le choix se fondera sur la nature du régime du cours d'eau.

4. *Débit solide total*

Il y a deux catégories de sédiments: les sédiments maintenus en suspension au sein de l'eau (sédiments en suspension), et les sédiments charriés sur le lit d'un cours d'eau (charriage de fond). Les deux types de sédiments doivent être mesurés séparément et leurs valeurs additionnées si on veut mesurer le débit total des sédiments. Toutefois, on ne l'a pas calculé aux fins de la présente publication.

5. *Laboratoires d'analyse*

La Direction des ressources en eau possède des laboratoires d'analyse des sédiments à New Westminster (Colombie-Britannique), Regina (Saskatchewan), Guelph (Ontario) et Moncton (Nouveau-Brunswick). Les laboratoires disposent des appareils nécessaires pour effectuer les analyses suivantes:

(a) la détermination de la concentration des sédiments par (1) filtration, (2) évaporation, et (3) détermination des matières dissoutes totales par évaporation.
(b) l'analyse granulométrique (1) par extraction des sédiments déposés dans un tube, (2) par l'emploi de tamis et (3) par l'utilisation d'un hydromètre.

La méthode par évaporation consiste à faire évaporer l'eau d'un échantillon de sédiments décanté et à corriger les résultats pour tenir compte des matières dissoutes. La quantité de celles-ci est déterminée en faisant évaporer une partie de l'eau de l'échantillon décanté. Dans la méthode par filtration, on utilise sous vide des creusets de Gooch munis d'un filtre Reeve Angel 934AH et d'un préfiltre Millipore AP20.

Particle-size analysis was carried out for some suspended sediment samples having gross weights in the range of 0.15 to 5 g using the Bottom Withdrawal Tube method. The particle-size distribution of the Bottom Withdrawal Tube method ranges from 0.002 to 1.000 mm. The Sieve analysis method may be used for samples with a large amount of material coarser than 0.062 mm.

The particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)
Clay	0.000 24 - 0.004
Silt	0.004 - 0.062
Sand	0.062 - 2.0
Gravel	2.0 - 64.0

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analyzed in distilled water. Chemical dispersion is not used for native-water analysis.

6. *Accuracy and Reliability of Field Data and Computed Results*

The overall accuracy and degree of reliability of the sediment data is dependent upon many factors. Some of the more important of these are:

(a) accuracy and reliability of streamflow records;
(b) regime of the river;
(c) type of sampling equipment used to collect the suspended sediment samples;
(d) frequency of suspended sediment discharge measurements;
(e) frequency of individual sampling;
(f) quality of the relationship between the average suspended sediment concentration in the cross section and the concentration of the individual samples;
(g) frequency and method of bed material sampling;
(h) frequency and method of bed load measurements;
(i) accuracy and reliability of the laboratory analysis;
(j) selected methods of computation of the suspended sediment discharge;
(k) interpretation and extrapolation of sediment records.

An assessment of the quality of the records can be made by an examination of the occurrence of the symbols A, B, E on the daily mean discharge and the S on the daily mean concentration.

In general, data collected during open-water periods are more reliable than those collected during periods of ice conditions or those records obtained by estimation. Further, water level data collected utilizing a water-stage recorder are more reliable and accurate than those using a manual gauge only, especially for small or flashy streams.

Une analyse granulométrique a été effectuée pour certains échantillons de sédiments en suspension ayant un poids brut dans l'intervalle de 0.15 à 5 g par la méthode de la burette (extraction des sédiments déposés, à divers intervalles). La distribution de la taille des particules déterminée par cette méthode varie de 0.002 à 1.000 mm. La méthode de tamisage peut être employée pour les échantillons ayant une forte quantité de particules de taille supérieure à 0.062 mm.

La classification granulométrique qui est utilisée dans la présente publication est conforme aux recommandations faites par l'*American Geophysical Union Subcommittee on Sediment Terminology*. La classification est la suivante:

Classification	Taille (mm)
Argile	0.000 24 - 0.004
Limon	0.004 - 0.062
Sable	0.062 - 2.0
Gravier	2.0 - 64.0

La répartition granulométrique qui est fournie dans cette publication, n'est pas obligatoirement représentative de toutes les particules qui sont transportées par un cours d'eau donné. La plupart des matières organiques sont extraites de l'échantillon qui est ensuite soumis à une dispersion mécanique et chimique avant d'être analysé dans de l'eau distillée. La dispersion chimique ne sert pas à l'analyse de l'eau naturelle.

6. *Exactitude des données et des résultats*

L'exactitude des données sur les sédiments dépend de nombreux facteurs. On peut citer, parmi les plus importants:

(a) l'exactitude des données sur les débits;
(b) le régime d'un cours d'eau;
(c) le type d'appareil d'échantillonnage utilisé pour prélever les échantillons de sédiments en suspension;
(d) la fréquence des mesures du débit des sédiments en suspension;
(e) la fréquence des échantillonnages isolés;
(f) la qualité du rapport entre la concentration moyenne des sédiments en suspension dans une section transversale et la concentration des échantillons isolés;
(g) la fréquence des échantillonnages des matériaux de fond et la méthode utilisée;
(h) la fréquence des mesures du charriage de fond et la méthode utilisée;
(i) l'exactitude des analyses de laboratoire;
(j) les méthodes de calcul du débit des sédiments en suspension;
(k) l'interprétation et l'extrapolation des données sur les sédiments.

La qualité des données peut être évaluée d'après la fréquence d'utilisation des symboles A, B, E, avec les données sur le débit journalier moyen, et S, avec celles sur la concentration journalière moyenne.

En général, les données recueillies au cours des périodes d'eau libre sont plus sûres que celles qui sont obtenues au cours des périodes de glaces ou par estimation. De plus, les données sur le niveau des eaux qui sont mesurées à l'aide d'un limnigraphe sont plus certaines et plus exactes que celles qui sont mesurées à l'aide d'une jauge manuelle seulement, surtout dans le cas des petits cours d'eau ou des cours d'eau à crues très rapides.

METHOD OF TABULATION OF SEDIMENT DATA

For stations where the suspended sediment load was obtained, the following data are given where available:

1. The table of *Suspended Sediment Load* includes the daily mean discharge in cubic metres per second, the daily mean concentration in milligrams per litre, and the daily suspended sediment load in tonnes per day. The total monthly discharge and total monthly sediment load is also given for complete months of record.

   For stations where the sediment load in tonnes per day are produced for complete or partial years, the *Total Suspended Load* for the period is given in the descriptive information.

   For stations where only suspended sediment concentrations are obtained, the table of *Suspended Sediment Load* will not be given.

   Additional descriptive information about the sediment station is also given above the table of *Suspended Sediment Load* and will indicate the following, where applicable.

   Location – the latitude and longitude co-ordinates of the location of the gauge are given. For stations where the gauge is located an appreciable distance from the discharge measurement section, these co-ordinates give the location of the discharge measurement section.

   Drainage area – refers to that area enclosed by a topographic divide such that direct surface runoff from precipitation would drain by gravity into the stream upstream from the location of the station.

   Natural Flow or *Regulated Flow* – where the flow is known to be natural, this is indicated. The flow of water in many river systems is affected by upstream regulation. In some cases, the extent of this regulation is not known and therefore is not indicated. However, where the regulation is known to be "appreciable", this is indicated as well as the year that the regulation began, if known.

   Type of Gauge – refers to the installation or method used to obtain water level or discharge data:

   (a) Manual – a non-recording type of gauge from which observations of stage normally are obtained once daily.

   (b) Recording – a water-stage recorder from which continuous water levels are obtained on an analog chart. For most International Gauging Stations located in the United States, water level records are obtained utilizing a digital recorder.

   International Gauging Stations – on waters adjacent to the international boundary, certain gauging stations have been

PRÉSENTATION DES TABLEAUX DE DONNÉES SUR LES SÉDIMENTS

Pour les stations de mesure du débit des sédiments en suspension, les données suivantes sont présentées, pour autant qu'elles sont disponibles:

1. Le tableau concernant le *débit des sédiments en suspension* (The table of Suspended Sediment Load) donne le débit journalier moyen de l'eau, en mètres cubes par seconde, la concentration journalière moyenne, en milligrammes par litre, et le débit journalier des sédiments en suspension, en tonnes par jour. Les mois où les données sont complètes, sont également indiqués les débits mensuels totaux de l'eau et des sédiments.

   Dans le cas des stations où le débit des sédiments, en tonnes par jour, est fourni pour une année complète ou une partie de l'année, le total pour la période est indiqué.

   Dans le cas des stations où seule la concentration des sédiments en suspension est obtenue, ce tableau est absent.

   Des renseignements descriptifs additionnels au sujet de la station sont également présentées au-dessus du tableau. On peut y apporter les précisions suivantes:

   Emplacement (Location) – La latitude et la longitude de la station de jaugeage sont indiquées. Dans les cas où l'équipement de mesure est situé à une bonne distance de la section où le jaugeage est effectué, on indique les coordonnées de cette section.

   Superficie du bassin versant (Drainage area) – Désigne la zone délimitée par une ligne de faîte de sorte que l'écoulement de surface direct provenant des précipitations est entraîné par gravité vers le cours d'eau, en amont de la station.

   Débit naturel ou *régularisé* (Natural Flow ou Regulated Flow) – Un débit reconnu comme naturel est indiqué. Le débit de nombreux réseaux hydrographiques est modifié par une régularisation effectuée en amont. Dans certains cas, l'importance de cette régularisation n'est pas connue, et elle n'est donc pas indiquée. Cependant, quand on sait que la régularisation est d'une certaine importance, on l'indique, ainsi que l'année où elle a débuté (si elle est connue).

   Type de jauge (Type of Gauge) – Il s'agit des jauges ou des méthodes de jaugeage utilisées pour obtenir les données sur le niveau ou le débit d'un cours d'eau.

   (a) *Manuelle* (Manual) – Indique qu'un appareil non enregistreur est employé pour obtenir normalement une fois par jour les données sur le niveau et le débit du cours d'eau.

   (b) *Enregistreuse* (Recording) – Indique qu'un limnigraphe permet de mesurer de façon continue le niveau des eaux qui est tracé sur un graphique. La plupart des stations internationales de jaugeage des États-Unis obtiennent les données sur le niveau des eaux à l'aide d'un enregistreur numérique.

   Stations internationales de jaugeage (International Gauging Stations) – Dans les eaux contiguës aux frontières, on a

designated as "International" and records are approved jointly. Differences between figures published herein and corresponding figures in United States Water Supply Papers are due to variations in automated data processing techniques.

Contributed Data – if data were supplied in their entirety or partially by an outside agency, the name of this co-operating agency is given.

Remarks – contains a statement pertaining to the sediment sample collection.

2. The table of *Instantaneous Suspended Sediment Concentration* for depth-integrating samples gives the particle-size distributions, in Percent Finer, in millimetres for each sample collected, if available. The Date and Time of the sample collection; Water Temperature; Instantaneous Discharge, if not available the daily mean discharge should be given and indicated by a symbol; Single Sampling Vertical location; Dissolved Solids; Percent Sand, Silt and Clay; Type of Sampler used is also given where available.

For the suspended sediment measurements, the date, time, water temperature at time of sampling, computed discharge for each sampling panel, concentration and the sampling vertical, coded with the symbol (M) to indicate a sampling vertical of a suspended sediment measurement are given.

3. The table of *Point Integrating Particle-size of Suspended Sediment* gives the particle-size distribution, in Percent Finer, in millimetres, for each sample collected in the measurement. The Date and Time of the sample collection; Instantaneous Discharge for each sampling vertical; Water Temperature; Sampling Vertical; Sample Depth; Concentration in milligrams per litre; Dissolved Solids, in milligrams per litre, and the Percent Sand, Silt and Clay are also given. The Type of Sampler used in the collection of the samples is indicated at the bottom of the table.

4. The table of *Bed Load Particle-size* gives the particle-size distribution, in Percent Finer, in millimetres, for each sample of bed load collected. The Date and Time of the sample collection; Instantaneous Discharge; Sampling Vertical and the Type of Sampler used in the collection of the sample are also given.

5. The table of *Bed Material Particle-size* gives the particle-size distribution, in Percent Finer, in millimetres, for each sample of bed material collected. The Date and Time of the sample collection; Instantaneous Discharge; Sampling Vertical and the Type of Sampler used in the collection of the sample are also given.

désigné certaines stations comme «internationales», et les données obtenues sont approuvées par les pays concernés. Les différences entre les chiffres publiés dans la présente publications et dans les *United States Water Supply Papers* sont dues à des variantes dans les techniques de traitement automatique des données.

Données fournies (Contributed Data) – Lorsqu'un organisme extérieur a fourni toutes les données ou une partie des données, son nom est indiqué.

Remarques (Remarks) – Renseignements au sujet du prélèvement des échantillons de sédiments.

2. Le tableau des *concentrations instantanées de sédiments en suspension* (The table of Instantaneous Suspended Sediment Concentration) pour les échantillons obtenus par intégration selon la profondeur donne la granulométrie des sédiments, en pourcentage des particules de taille inférieure à une taille donnée, en millimètres, pour chaque échantillon recueilli, si elle est connue. Sont également indiqués la date et l'heure de prélèvement; la température de l'eau; son débit instantané (s'il n'est pas connu, le débit journalier moyen, avec symbole); l'emplacement de la verticale d'échantillonnage; la concentration des matières dissoutes; les pourcentages de sable, de limon et d'argile; le type d'échantillonneur employé, si connu.

Pour les mesures des sédiments en suspension, la date, l'heure, la température de l'eau au moment de l'échantillonnage, le débit calculé pour chaque tranche de la section d'échantillonnage, la concentration et la verticale d'échantillonnage, avec le code M pour indiquer une verticale d'échantillonnage d'une mesure des sédiments en suspension, sont donnés.

3. Le tableau de la *granulométrie des échantillons ponctuels et intégrés des sédiments en suspension* (The table of Point Integrating Particle-size of Suspended Sediment) donne les pourcentages de particules de taille inférieure aux tailles indiquées, en millimètres, pour chaque échantillon prélevé pour la mesure. Sont également indiqués la date et l'heure de prélèvement de l'échantillon, le débit instantané pour chaque verticale d'échantillonnage, la température de l'eau, la verticale d'échantillonnage, la profondeur de l'échantillon, la concentration des sédiments, en milligrammes par litre, la concentration des matières dissoutes, en milligrammes par litre, et les pourcentages de sable, de limon et d'argile. Le type d'échantillonneur employé est indiqué au bas du tableau.

4. Le tableau de la *granulométrie des sédiments charriés* (The table of Bed Load Particle-size) donne le pourcentage des particules de taille inférieure aux tailles indiquées, en millimètres, pour chaque échantillon recueilli du charriage. Sont également indiqués la date et l'heure de prélèvement de l'échantillon, le débit instantané, la verticale d'échantillonnage et le type d'échantillonneur employé.

5. Le tableau de la *granulométrie des matériaux du lit* (The table of Bed Material Particle-size) donne le pourcentage des particules de taille inférieure aux tailles indiquées, en millimètres, pour chaque échantillon recueilli. Sont également indiqués la date et l'heure de prélèvement de l'échantillon, le débit instantané, la verticale d'échantillonnage et le type d'échantillonneur employé.

6. The table of *Historical Sediment Data Summary* gives the following, for the period of record, where applicable.

(a) Period of Record
(b) Type of Operation
(c) Sampled Concentration
(d) Suspended Sediment Load
(e) Summary.

(a) The *Period of Record* gives the first and last month of record for the year, i.e. (APR-DEC) for April to December. If the *Period of Record* is incomplete this is indicated by an octothorpe (#).
(b) The *Type of Operation* shows *method of sampling* and the *operation schedule*, which are presented as two symbols i.e. M-S.

The first symbol is the *method of sampling* and could be one of the symbols (A), (B) or (M). The symbol (A) indicates that the method of sample collection was by an automatic sampler; (M) represents manual sampling. If samples during the year or season were collected by both automatic sampling and manual methods, this would be indicated by the symbol (B) for both.

The second symbol is the *operation schedule* which is represented by one of the symbols (C), (MS) or (S). The symbol (C) indicates that sediment loads are continuous for the entire year. The symbol (S) indicates that records are available only for partial year or seasonal. If records are available only for individual days of a year, this is indicated by the symbol (MS) for miscellaneous.

(c) The *Sampled Concentration* gives the maximum and minimum concentration, in milligrams per litre, and the date of collection for each year of record. The extreme recorded for the period of record is indicated by an asterisk (*).

(d) The *Suspended Sediment Load* gives the maximum daily load, in tonnes, and the date of occurrence. The extreme recorded is indicated by an asterisk (*). The Total for the Period gives the total load for the period or year, in tonnes. The extreme recorded is also indicated by an asterisk (*). A load which has been revised since the previous publication is marked with the symbol (R) for Revision.
(e) The *Summary* gives the *Mean Load* and the *Historical Mean Load* in tonnes.

The *Standard Error of the Mean* % is calculated using the following equation.

$$\frac{\sigma}{\bar{x} \times \sqrt{n}} \times 100\%$$

For stations with only instantaneous samples, this table will not include the *Suspended Sediment Load* or the statistical information in the *Summary*.

6. Le tableau du *sommaire chronologique des données sur les sédiments* (The table of Historical Sediment Data Summary) donne, pour la période pour laquelle les données sont disponibles, les renseignements suivants lorsque de telles données existent:

(a) La période de relevé
(b) Le type d'exploitation
(c) Les concentrations mesurées
(d) Le débit des sédiments en suspension
(e) Le résumé.

(a) La *période de relevé* (Period of Record) donne le premier et le dernier mois des données au cours de l'année; ex.: (APR-DEC) pour avril à décembre. Le symbole # indique la *période de relevé* est incomplète.
(b) Sous le *type d'exploitation* (Type of Operation) on donne la *méthode d'échantillonnage* et le *calendrier d'exploitation*, qui sont présentés sous forme de deux symboles; ex.: M-S.

Le premier symbole correspond à la *méthode d'échantillonnage*; ce peut être un A, un B ou un M. Un A indique que l'échantillonnage a été fait au moyen d'un appareil automatique; un M, qu'il était manuel; et un B, que durant l'année ou la saison des méthodes manuelles et automatiques ont été employées.

Le deuxième symbole code pour le *calendrier d'exploitation*; ce peut être un C, un MS ou un S. Un C indique que les mesures du débit des sédiments se font pendant toute l'année; un S, que les données ne sont disponibles que pour une partie de l'année ou sont saisonnières; un MS, que les données ne sont disponibles que pour certains jours de l'année.

(c) Pour les *concentrations mesurées* (Sampled Concentration), on donne la concentration maximale et la concentration minimale, en milligrammes par litre, et leur date d'obtention pour chaque année de relevé. La valeur extrême enregistrée est indiquée par un astérisque (*).
(d) Sous le *débit des sédiments en suspension* (Suspended Sediment Load), on donne le débit journalier maximal, en tonnes, et sa date de mesure. Le débit extrême enregistré est indiqué par un astérisque (*). Le débit total pour la période ou pour l'année est indiqué. La valeur extrême est également signalée par un astérisque (*). La lettre R indique qu'une valeur du débit a été révisée depuis la dernière publication.
(e) Le *résumé* donne le *débit moyen* et le *débit moyen chronologique*, en tonnes.

L'*erreur-type de la moyenne* (Standard Error of the Mean), en pourcentage, est calculée à l'aide de l'équation suivante:

$$\frac{\sigma}{\bar{x} \times \sqrt{n}} \times 100\%$$

Dans le cas des stations ne prélevant que des échantillons instantanés, ce tableau ne donnera pas le *débit des sédiments en suspension* ni les données statistiques du *résumé*.

DEFINITION OF TERMS

The following definitions are given to clarify the terms used in this publication:

Automatic pump sample is an individual water-sediment mixture pumped from a fixed point in a stream.

Bed load is that material moving in almost continuous contact with the streambed, being rolled or pushed along the bottom by the force of the water.

Bed material is the sediment mixture of which the streambed is composed.

Daily load is the suspended sediment load expressed in tonnes for a particular day. The daily load is obtained by multiplying the daily mean sediment concentration (mg/L) by the daily mean discharge (m^3/s) and the conversion factor, 0.0864.

Daily mean concentration is a time-weighted mean value and is computed from a manually constructed concentration curve. The mean concentration value may be determined arithmetically or graphically. The arithmetic mean is obtained either by (1) selecting values from the concentration graph that represents uniform intervals of time and taking the arithmetic average or by (2) selecting values from the graph that represent unequal intervals of time and weighing these values by the time intervals represented by the concentrations. For graphical explanation refer to *Office Procedures for Sediment Data Computations* and for the automated graphical explanation refer to *Automated Hydrometric Computation Procedures*.

Depth-integrated sediment sample is a suspended sediment sample collected at a single vertical in a cross section in a sampler moving vertically at a constant transit rate and represents an average sample for that part of the depth ranging from the water surface to about nine centimetres above the streambed.

Instantaneous suspended sediment sample is a sample collected at a fixed vertical in a river cross section.

Measured suspended sediment discharge is the suspended sediment discharge that can be computed from stream discharge and the concentration of sediment determined from depth-integrated sediment samples.

Particle-size analysis is the process of determining the size distribution of particles in a sediment sample.

Point-integrated sediment sample is a sample of the water-sediment mixture taken over a specified period of time at a fixed point and depth in a river cross section.

DÉFINITION DES TERMES

Les définitions suivantes sont présentées afin de faciliter la compréhension des termes utilisés dans la présente publication:

Échantillonnage automatique à l'aide d'une pompe (Automatic pump sample): Prélèvement d'un mélange de sédiments et d'eau au moyen d'une pompe fonctionnant automatiquement, en un point précis d'un cours d'eau.

Charriage (Bed load): Matières roulées ou poussées sur le fond sous l'action de l'eau, mais restant en contact presque permanent avec le fond.

Matériau du lit (Bed material): Mélange de sédiments composant le lit d'un cours d'eau.

Débit journalier des sédiments en suspension (Daily load): Débit des sédiments en suspension exprimé en tonnes par jour, pour une journée donnée. On l'obtient en multipliant la concentration journalière moyenne des sédiments (mg/L) par le débit journalier moyen de l'eau (m^3/s) et le facteur de conversion 0.0864.

Concentration journalière moyenne (Daily mean concentration): Moyenne pondérée en fonction du temps, calculée à partir d'une courbe de la concentration établie manuellement. La valeur de la concentration moyenne peut être déterminée arithmétiquement ou graphiquement. Pour la déterminer arithmétiquement, on peut, soit choisir sur la courbe des valeurs représentant des intervalles uniformes de temps et faire la moyenne arithmétique, soit choisir sur cette courbe des valeurs qui représentent des intervalles inégaux de temps et pondérer ces valeurs en fonction des intervalles de temps correspondants. En ce qui concerne les méthodes graphiques, consulter *Méthodes de bureau pour les calculs de données sur les sédiments* et, pour la méthode automatisée, *Automated Hydrometric Computation Procedures*.

Échantillon intégré sur toute la profondeur (Depth integrated sediment sample): Échantillon des sédiments en suspension prélevé sur une verticale précise d'une section transversale d'un cours d'eau à l'aide d'un échantillonneur se déplaçant verticalement à une vitesse constante; il représente un échantillon moyen des matières en suspension entre la surface de l'eau et environ 9 cm du fond.

Échantillon instantané de sédiments en suspension (Instantaneous suspended sediment sample): Échantillon prélevé à une verticale précise d'une section transversale d'un cours d'eau.

Débit mesuré des sédiments en suspension (Measured suspended sediment discharge): Débit des sédiments en suspension qui peut être calculé à partir du débit du cours d'eau et de la concentration des sédiments déterminée à partir d'échantillons intégrés sur toute la profondeur.

Analyse granulométrique (Particle-size analysis): Détermination de la répartition de la taille des particules dans un échantillon de sédiments.

Échantillon ponctuel et intégré (Point-integrated sediment sample): Échantillon constitué d'un mélange d'eau et de sédiments, prélevé au cours d'une période de temps donnée en un point précis d'une section transversale d'un cours d'eau et à une profondeur donnée.

Sediment is fragmental material which has deposited, eroded or transported by a flowing stream.

Sediment hydrograph is a graph showing the variation of suspended sediment concentration or sediment discharge with respect to time.

Single sample is a sample taken at a selected permanent vertical in a cross section. Two bottles of water-sediment mixture make up each single sample.

Single sampling vertical is a selected permanent vertical in a cross section in which single suspended sediment samples are collected.

Suspended sediment is sediment that moves in suspension in water either as a colloid or through the influence of the upward component of turbulent currents.

Suspended sediment concentration is the ratio of the weight of dry solids in a water-sediment mixture to the volume of the mixture. The units of this ratio are "milligrams per litre" (mg/L).

Suspended sediment load is the quantity of suspended sediment transported through a cross section per unit of time.

Total sediment load is the sum of the suspended sediment load and the bed load.

Unmeasured sediment load is the difference between total sediment load and measured suspended sediment load.

Sédiments (Sediment): Matières fragmentaires qui ont été déposées, érodées ou transportées par un cours d'eau.

Hydrogramme des sédiments (Sediment hydrograph): Graphique représentant la variation de la concentration des sédiments en suspension ou du débit des sédiments en fonction du temps.

Échantillon unique (Single sample): Échantillon prélevé sur une verticale permanente particulière dans une section transversale. Deux bouteilles du mélange eau-sédiments constituent un seul échantillon.

Verticale d'échantillonnage unique (Single sampling vertical): Verticale permanente d'une section transversale où des échantillons uniques de sédiments en suspension sont prélevés.

Sédiments en suspension (Suspended sediment): Matériaux qui se déplacent au sein de l'eau, soit sous forme colloïdale, soit sous l'influence des forces ascendantes des courants turbulents.

Concentration des sédiments en suspension (Suspended sediment concentration): Rapport entre le poids des matières solides sèches contenues dans un mélange eau-sédiments et le volume du mélange. Les unités employées sont les «milligrammes par litre» (mg/L).

Débit des sédiments en suspension (Suspended sediment load): Quantité de sédiments en suspension transportés par unité de temps à travers une section transversale d'un cours d'eau.

Débit total des sédiments (Total sediment load): Somme du débit des sédiments en suspension et du débit charrié.

Débit non mesuré des sédiments (Unmeasured sediment load): Différence entre le débit total des sédiments et le débit mesuré des sédiments en suspension.

DEFINITION OF SYMBOLS

A – Manual Gauge – indicates that one or more manual gauge observations per day were obtained and used as the mean for the day for a gauging station equipped with a recording gauge. This symbol is used during open-water periods only.

B – Ice Conditions – indicates the presence of ice at the gauging station. For gauging stations where discharge data are obtained, this symbol indicates that the presence of ice has affected the stage-discharge relationship.

E – Estimated – indicates estimated data. It indicates that the values between collected sediment samples of a peak period are estimated by some indirect method such as interpolation, extrapolation, from a graph of observed readings, comparison with other streams or by comparison with meteorological data.

H – Daily Mean Discharge – is the mean discharge for a particular day, usually referred to as the "daily discharge".

S – Sample(s) collected this day – indicates that a depth-integrated or point-integrated measurement, single vertical sample(s) or a sample collected by an automatic sampling device, was collected this day.

DÉFINITIONS DES SYMBOLES

A – Turbidisonde simple – Indique qu'on a effectué à une station de jaugeage dotée d'une turbidisonde enregistreuse au moins une observation par jour à l'aide d'une turbidisonde simple et qu'on s'en est servi comme moyenne pour la journée en question. Le symbole n'est employé qu'au cours des périodes d'eau libre.

B – Glaces – Indique la présence de glaces à la station de jaugeage, qui ont faussé la relation hauteur-débit.

E – Estimative – Indique des données estimatives, c'est-à-dire que les valeurs fournies entre les prélèvements d'échantillons d'une période de débit de pointe, sont évaluées de façon indirecte, par exemple par interpolation, extrapolation, à l'aide de graphique, ou par comparaison avec d'autres cours d'eau ou avec des données météorologiques.

H – Débit journalier moyen – Debit moyen pour une journée donnée, ordinairement appelé «débit journalier».

S – Échantillon(s) prélevé(s) en ce jour – Indique qu'on a prélevé ce jour-là un (ou des) échantillon(s), intégré(s) selon la profondeur ou ponctuel(s), sur une (ou des) verticale(s) d'échantillonnage, ou qu'on a prélevé un échantillon au moyen d'un dispositif d'échantillonnage automatique.

CO-OPERATION AND ACKNOWLEDGMENTS

Co-operative undertakings with other agencies form an important part of the activities of the Water Survey of Canada. Close co-operation has been maintained with public agencies and private organizations concerned with water resources. Data have been mutually exchanged and suspended sediment collection operations have been facilitated by the assistance received from a number of organizations.

On waters adjacent to the International Boundary, certain sediment stations are maintained by Canada (or the United States) under agreement with the United States (or Canada) and the records are collected and compiled in a manner equally acceptable to both countries. These stations are designated as "International Gauging Stations" in this publication.

For the valuable assistance and co-operation received in obtaining sediment survey records, the Water Survey of Canada is indebted to other federal and provincial organizations which are noted as contributing agencies in the summary for the year. A list of these agencies may be found in the *Sediment Data Reference Index*.

COOPÉRATION ET REMERCIEMENTS

Le travail entrepris en coopération avec d'autres organismes représente une partie importante des activités de la Division des relevés hydrologiques du Canada. On a maintenu une étroite collaboration avec les organismes, publics ou privés, qui s'intéressent aux ressources en eau. On a échangé des données sur les sédiments, et l'assistance fournie par certains organismes a facilité les opérations d'échantillonnage des sédiments en suspension.

Dans les eaux adjacentes à la frontière internationale, les stations dépendent du Canada ou des États-Unis selon l'accord intervenu entre les deux pays, et les relevés sont faits et compilés de façon à satisfaire les deux pays. Ces stations sont nommées «Stations internationales de jaugeage» dans la présente publication.

La Division des relevés hydrologiques du Canada est redevable à plusieurs organismes fédéraux et provinciaux, dont les noms apparaissent dans le sommaire de l'année, de l'aide et de la collaboration qu'ils lui ont apportées pour l'obtention des données sur les sédiments. On trouvera également les noms des organismes qui ont fourni des données dans l'*Index de référence des données sur les sédiments*.

REVISIONS

A number of corrections or revisions have been made to previously published data. Many of these were required because of typographical or computational errors which were exposed when the data were stored on magnetic tape and monthly means were re-calculated by computer. Other errors were discovered or different interpretations of basic data were made during the systematic review of historical streamflow data presently underway.

Revisions to daily discharges or sediment data are not published at present. However, those stations where a systematic review has been conducted are identified in the Surface Water Data Reference Index publication. The Historical Streamflow Summary publications contain revisions to monthly and annual mean discharges, and annual extremes of discharge. Revisions, corrections or additions made to discharges and sediment after January 1, 1980, are indicated by an "R" symbol in the data summaries. Detailed information on revisions to historical data is available from the appropriate Regional Chief.

RÉVISIONS

On a corrigé ou révisé des données déjà publiées. Il a été nécessaire d'effectuer plusieurs corrections, car on a relevé des erreurs typographiques ou de calcul lorsqu'on a enregistré les données sur rubans magnétiques et qu'on a recalculé les moyennes mensuelles à l'aide d'un ordinateur. On a aussi relevé d'autres erreurs ou fait des interprétations différentes de certaines données de base au cours de la révision systématique des données historiques sur le débit, actuellement en cours.

Les corrections apportées aux débits journaliers ou aux données sur les sédiments ne sont pas publiées, du moins pour le moment. Cependant, les stations où on a effectué une révision systématique sont indiquées dans l'*Index de référence des données sur les eaux de surface*. Les publications intitulées *Sommaire chronologique de l'écoulement* contiennent des données révisées sur les débits mensuels et annuels moyens et les extrêmes annuels du débit. Les révisions, corrections ou ajouts apportés aux données sur les débits et sur les sédiments après le 1er janvier 1980 sont indiqués par la lettre R dans les résumés des données. On peut obtenir plus de détails sur les révisions en s'adressant au chef régional concerné.

MICROFICHE

All sediment data are available in metric units on microfiche, upon request. The data are stored in station number order by province. There are 270 frames per microfiche at 48X reduction; there is a visible heading showing the fiche number, type of data, province, beginning and ending station number and year of data, and the month/year the fiche was created. The last frame is an index of the contents of that fiche.

MICROFICHE

Toutes les données sur les sédiments sont disponibles sur microfiche en unités métriques. Ces données sont emmagasinées par ordre de numéro de station et par province. Chaque microfiche renferme 270 pages réduites de 48X. L'en-tête indique le numéro de la fiche, le genre de données, la province, le numéro de la première et de la dernière station, la première et la dernière année des données ainsi que le mois et l'année de création de la fiche. La dernière image donne l'index de la fiche.

EQUIVALENTS OF MEASURE

The following list of convenient equivalents of measure includes the relationship between imperial units and the International System of Units (SI).

1 inch equals 2.54 cm (centimetres)
1 foot equals 0.3048 m (metre)
1 statute mile equals 1.6093 km (kilometres)

1 cm (centimetre) equals 0.393 70 inch
1 m (metre) equals 3.2808 feet
1 km (kilometre) equals 0.621 37 mile

1 acre equals 43 560 square feet
1 acre equals 0.404 69 ha (hectare)
1 square mile equals 640 acres
1 square mile equals 2.5900 km^2 (square kilometres)
1 square mile equals 259.0 ha (hectares)

1 ha (hectare) equals 10 000 m^2 (square metres)
1 ha (hectare) equals 2.4710 acres
1 km^2 (square kilometre) equals 0.386 10 square mile

1 cubic foot equals 6.2288 imperial gallons
1 imperial gallon equals 4.546 09 L (litres)
1 imperial gallon equals 1.2010 U.S. gallons
1 U.S. gallon equals 0.133 68 cubic foot
1 cubic foot equals 0.028 317 m^3 (cubic metre)
1 m^3 (cubic metre) equals 35.315 cubic feet
1 dam^3 (cubic decametre) equals 1000 m^3 (cubic metres)
1 dam^3 (cubic decametre) equals 1 mm (millimetre) over 1 km^2 (square kilometre)

1 cubic foot per second for one day equals 1.9835 acre-feet
1 cubic foot per second for one day covers one square mile to a depth of 0.037 19 inch
1 acre-foot equals 1.2335 dam^3 (cubic decametres)
1 m^3/s (cubic metre per second) for one day equals 86.4 dam^3 (cubic decametre)
1 m^3/s (cubic metre per second) for one day covers one square kilometre to a depth of 0.0864 m (metre)

1 foot per second equals 0.6818 mile per hour
1 mile per hour equals 1.467 feet per second
1 m/s (metre per second) equals 3.6 km/h (kilometre per hour)
1 km/h (kilometre per hour) equals 0.2778 m/s (metre per second)

1 cubic foot per second equals 0.028 317 m^3/s (cubic metre per second)
1 m^3/s (cubic metre per second) equals 35.315 cubic feet per second

1 pound equals 0.453 59 kg (kilogram)
1 kg (kilogram) equals 2.2046 pounds

1 short ton (2000 pounds) equals 0.907 18 t (tonne)
1 t (tonne) equals 2204.6 pounds

degrees Celsius = 5/9 (degrees Fahrenheit − 32)
degrees Fahrenheit = 9/5 (degrees Celsius) + 32

ÉQUIVALENCES DES UNITÉS DE MESURE

Voici une liste des unités de mesure impériales et leurs équivalences dans le Système international d'unités (SI).

1 pouce vaut 2.54 cm (centimètres)
1 pied vaut 0.3048 m (mètre)
1 mille terrestre vaut 1.6093 km (kilomètre)

1 cm (centimètre) vaut 0.393 70 pouce
1 m (mètre) vaut 3.2808 pieds
1 km (kilomètre) vaut 0.621 37 mille

1 acre vaut 43 560 pieds carrés
1 acre vaut 0.404 69 ha (hectare)
1 mille carré vaut 640 acres
1 mille carré vaut 2.5900 km^2 (kilomètres carrés)
1 mille carré vaut 259.0 ha (hectares)

1 ha (hectare) vaut 10 000 m^2 (mètres carrés)
1 ha (hectare) vaut 2.4710 acres
1 km^2 (kilomètre carré) vaut 0.386 10 mille carré

1 pied cube vaut 6.2288 gallons impérials
1 gallon impérial vaut 4.546 09 L (litres)
1 gallon impérial vaut 1.2010 gallon américain
1 gallon américain vaut 0.133 68 pied cube
1 pied cube vaut 0.028 317 m^3 (mètre cube)
1 m^3 (mètre cube) vaut 35.315 pieds cubes
1 dam^3 (décamètre cube) vaut 1000 m^3 (mètres cubes)
1 dam^3 (décamètre cube) vaut 1 mm (millimètre) qui couvre 1 km^2 (kilomètre carré)

1 pied cube par seconde pendant un jour vaut 1.9835 acre-pied
1 pied cube par seconde pendant un jour couvre un volume d'un mille carré par 0.037 19 pouce
1 acre-pied vaut 1.2335 dam^3 (décamètre cube)
1 m^3/s (mètre cube par seconde) pour un jour vaut 86.4 dam^3 (décamètres cubes)
1 m^3/s (mètre cube par seconde) pour un jour couvre un kilomètre carré à une profondeur de 0.0864 m (mètre)

1 pied par seconde vaut 0.6818 mille par heure
1 mille par heure vaut 1.467 pied par seconde
1 m/s (mètre par seconde) vaut 3.6 km/h (kilomètres par heure)
1 km/h (kilomètre par heure) vaut 0.2778 m/s (mètre par seconde)

1 pied cube par seconde vaut 0.028 317 m^3/s (mètre cube par seconde)
1 m^3/s (mètre cube par seconde) vaut 35.315 pieds cubes par seconde

1 livre vaut 0.453 59 kg (kilogramme)
1 kg (kilogramme) vaut 2.2046 livres

1 tonne courte (2000 livres) vaut 0.907 18 t (tonne)
1 t (tonne) vaut 2204.6 livres

degrés Celsius = 5/9 (degrés Fahrenheit − 32)
degrés Fahrenheit = 9/5 (degrés Celsius) + 32

MANITOBA

ANTLER RIVER NEAR MELITA - STATION NO. 05NF002

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 03 34 N LONG 101 02 55 W
DRAINAGE AREA: 3 230 km²
TYPE OF FLOW: NATURAL
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 5.27 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

	JAN			FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0 B	0	0	0 B	0	0	0 B	0	0	1
2	0 B	0	0	0 B	0	0	0 B	0	0	2
3	0 B	0	0	0 B	0	0	0 B	0	0	3
4	0 B	0	0	0 B	0	0	0 B	0	0	4
5	0 B	0	0	0 B	0	0	0 B	0	0	5
6	0 B	0	0	0 B	0	0	0 B	0	0	6
7	0 B	0	0	0 B	0	0	0 B	0	0	7
8	0 B	0	0	0 B	0	0	0 B	0	0	8
9	0 B	0	0	0 B	0	0	0 B	0	0	9
10	0 B	0	0	0 B	0	0	0 B	0	0	10
11	0 B	0	0	0 B	0	0	0 B	0	0	11
12	0 B	0	0	0 B	0	0	0 B	0	0	12
13	0 B	0	0	0 B	0	0	0 B	0	0	13
14	0 B	0	0	0 B	0	0	0 B	0	0	14
15	0 B	0	0	0 B	0	0	0 B	0	0	15
16	0 B	0	0	0 B	0	0	0 B	0	0	16
17	0 B	0	0	0 B	0	0	0 B	0	0	17
18	0 B	0	0	0 B	0	0	0 B	0	0	18
19	0 B	0	0	0 B	0	0	0 B	0	0	19
20	0 B	0	0	0 B	0	0	0 B	0	0	20
21	0 B	0	0	0 B	0	0	0 B	0	0	21
22	0 B	0	0	0 B	0	0	0 B	0	0	22
23	0 B	0	0	0 B	0	0	0 B	0	0	23
24	0 B	0	0	0 B	0	0	0.003 B	9	0	24
25	0 B	0	0	0 B	0	0	0.011 B	21 S	0.02	25
26	0 B	0	0	0 B	0	0	0.007 B	10	0.01	26
27	0 B	0	0	0 B	0	0	0.003 B	1	0	27
28	0 B	0	0	0 B	0	0	0.001 B	0	0	28
29	0 B	0	0	0 B	0	0	0 B	0	0	29
30	0 B	0	0				0 B	0	0	30
31	0 B	0	0				0 B	0	0	31
TOTAL	0		0	0		0	0.025		0.03	TOTAL

	APR			MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.152 B	5	0.07	0.155	2 S	0.03	0.057	9	0.04	1
2	0.382 B	6 S	0.26	0.134	2 S	0.02	0.051	7	0.04	2
3	0.437 B	6 S	0.23	0.143	2 S	0.02	0.057	5	0.02	3
4	0.406 B	7 S	0.25	0.175	2	0.03	0.055	4	0.02	4
5	0.373	6 S	0.19	0.178	3	0.05	0.050	3	0.01	5
6	0.308	7 S	0.19	0.205	4	0.07	0.053	2	0.01	6
7	0.254	7 S	0.15	0.259	5	0.11	0.058	2	0.01	7
8	0.217	6 S	0.11	0.256	5 S	0.11	0.057	1	0.01	8
9	0.178	6 S	0.08	0.257	5	0.11	0.050	1	0	9
10	0.172	6 S	0.09	0.249	5	0.11	0.027	0	0	10
11	0.184	5 S	0.08	0.243	5	0.10	0.002	0	0	11
12	0.223	6 S	0.12	0.235	5	0.12	0.003	0	0	12
13	0.279	7	0.17	0.218	5	0.11	0.002	0	0	13
14	0.261	7 S	0.17	0.211	5	0.11	0.001	0	0	14
15	0.258	6 S	0.13	0.209	5	0.11	0	0	0	15
16	0.223	5	0.12	0.207	5	0.11	0	0	0	16
17	0.181	5 S	0.08	0.213	5	0.11	0	0	0	17
18	0.146	5	0.06	0.201	5	0.10	0	0	0	18
19	0.124	5 S	0.05	0.173	5	0.07	0	0	0	19
20	0.112	4	0.04	0.155	5 S	0.07	0	0	0	20
21	0.123	2 S	0.02	0.150	5	0.06	0	0	0	21
22	0.119	2	0.02	0.131	5	0.05	0	0	0	22
23	0.118	2 S	0.02	0.087	5	0.04	0	0	0	23
24	0.124	2	0.02	0.088	5	0.05	0	0	0	24
25	0.100	2	0.02	0.095	5 S	0.05	0	0	0	25
26	0.078	2	0.01	0.088	5	0.04	0	0	0	26
27	0.106	2	0.02	0.083	5	0.04	0	0	0	27
28	0.115	2	0.02	0.086	7	0.05	0	0	0	28
29	0.189	2	0.03	0.103	7	0.08	0	0	0	29
30	0.185	2	0.03	0.079	8	0.05	0	0	0	30
31				0.045	5 S	0.03				31
TOTAL	5.161		2.87	5.139		2.21	0.551		0.16	TOTAL

B - ICE CONDITIONS S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ANTLER RIVER NEAR MELITA - STATION NO. 05NF002

SUSPENDED SEDIMENT FOR 1984

DAY	JUL DAILY DISCHARGE (m^3/s)	JUL MEAN CON-CENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m^3/s)	AUG MEAN CON-CENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CON-CENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	0	3
4	0	0	0	0	0	0	0	0	0	4
5	0	0	0	0	0	0	0	0	0	5
6	0	0	0	0	0	0	0	0	0	6
7	0	0	0	0	0	0	0	0	0	7
8	0	0	0	0	0	0	0	0	0	8
9	0	0	0	0	0	0	0	0	0	9
10	0	0	0	0	0	0	0	0	0	10
11	0	0	0	0	0	0	0	0	0	11
12	0	0	0	0	0	0	0	0	0	12
13	0	0	0	0	0	0	0	0	0	13
14	0	0	0	0	0	0	0	0	0	14
15	0	0	0	0	0	0	0	0	0	15
16	0	0	0	0	0	0	0	0	0	16
17	0	0	0	0	0	0	0	0	0	17
18	0	0	0	0	0	0	0	0	0	18
19	0	0	0	0	0	0	0	0	0	19
20	0	0	0	0	0	0	0	0	0	20
21	0	0	0	0	0	0	0	0	0	21
22	0	0	0	0	0	0	0	0	0	22
23	0	0	0	0	0	0	0	0	0	23
24	0	0	0	0	0	0	0	0	0	24
25	0	0	0	0	0	0	0	0	0	25
26	0	0	0	0	0	0	0	0	0	26
27	0	0	0	0	0	0	0	0	0	27
28	0	0	0	0	0	0	0	0	0	28
29	0	0	0	0	0	0	0	0	0	29
30	0	0	0	0	0	0	0	0	0	30
31	0	0	0	0	0	0				31
TOTAL	0		0	0		0	0		0	TOTAL

DAY	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CON-CENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CON-CENTRATION (mg/L)	NOV DAILY LOAD (t)	DEC DAILY DISCHARGE (m^3/s)	DEC MEAN CON-CENTRATION (mg/L)	DEC DAILY LOAD (t)	DAY
1	0	0	0	0 B	0	0	0 B	0	0	1
2	0	0	0	0 B	0	0	0 B	0	0	2
3	0	0	0	0 B	0	0	0 B	0	0	3
4	0	0	0	0 B	0	0	0 B	0	0	4
5	0	0	0	0 B	0	0	0 B	0	0	5
6	0	0	0	0 B	0	0	0 B	0	0	6
7	0	0	0	0 B	0	0	0 B	0	0	7
8	0	0	0	0 B	0	0	0 B	0	0	8
9	0	0	0	0 B	0	0	0 B	0	0	9
10	0	0	0	0 B	0	0	0 B	0	0	10
11	0	0	0	0 B	0	0	0 B	0	0	11
12	0	0	0	0 B	0	0	0 B	0	0	12
13	0	0	0	0 B	0	0	0 B	0	0	13
14	0	0	0	0 B	0	0	0 B	0	0	14
15	0	0	0	0 B	0	0	0 B	0	0	15
16	0	0	0	0 B	0	0	0 B	0	0	16
17	0	0	0	0 B	0	0	0 B	0	0	17
18	0	0	0	0 B	0	0	0 B	0	0	18
19	0	0	0	0 B	0	0	0 B	0	0	19
20	0	0	0	0 B	0	0	0 B	0	0	20
21	0	0	0	0 B	0	0	0 B	0	0	21
22	0	0	0	0 B	0	0	0 B	0	0	22
23	0	0	0	0 B	0	0	0 B	0	0	23
24	0	0	0	0 B	0	0	0 B	0	0	24
25	0	0	0	0 B	0	0	0 B	0	0	25
26	0	0	0	0 B	0	0	0 B	0	0	26
27	0	0	0	0 B	0	0	0 B	0	0	27
28	0	0	0	0 B	0	0	0 B	0	0	28
29	0	0	0	0 B	0	0	0 B	0	0	29
30	0	0	0	0 B	0	0	0 B	0	0	30
31	0	0	0				0 B	0	0	31
TOTAL	0		0	0		0	0		0	TOTAL

B - ICE CONDITIONS

ANTLER RIVER NEAR MELITA - STATION NO. 05NF002

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
MAR 25	11:35	3.0	0.011 W	21	MID												120				DH59
APR 02	08:00	4.0	0.382 W	8	MID												381				DH59
APR 02	15:00	4.0	0.382 W	7	MID																DH59
APR 03	10:18	2.0	0.437 W	5	MID																DH59
APR 03	18:10	3.0	0.437 W	7	MID																DH59
APR 04	09:12	2.0	0.406 W	6	MID																DH59
APR 04	20:05	3.0	0.406 W	7	MID																DH59
APR 05	10:14	5.0	0.382	5	MID																DH59
APR 05	16:43	4.0	0.362	7	MID																DH59
APR 06	09:37	5.0	0.314	4	MID																DH59
APR 06	16:54	9.0	0.289	10	MID																DH59
APR 07	11:10	9.0	0.254	5	MID																DH59
APR 07	16:30	8.0	0.247	6	MID																DH59
APR 08	12:30	10.0	0.214	5	MID																DH59
APR 09	09:30	7.0	0.187	7	MID																DH59
APR 09	19:30	8.0	0.187	6	MID												359				DH59
APR 10	11:30	7.0	0.172	6	MID																DH59
APR 10	13:00	7.0	0.175	7	MID																DH59
APR 11	09:30	7.0	0.180	5	MID																DH59
APR 12	17:00	6.0	0.230	6	MID																DH59
APR 14	16:25	9.0	0.275	7	MID																DH59
APR 15	11:30	8.0	0.259	5	MID																DH59
APR 17	08:24	8.0	0.191	6	MID																DH59
APR 19	13:05	12.0	0.129	5	MID												374				DH59
APR 21	14:04	12.0	0.128	2	MID												389				DH59
APR 23	13:32	15.0	0.120	2	MID																DH59
MAY 01	08:33	3.0	0.155	2	MID																DH59
MAY 02	12:25	5.0	0.132	3	MID																DH59
MAY 03	10:00	6.0	0.131	2	MID												354				DH59
MAY 08	20:17	11.0	0.258	5	MID												384				DH59
MAY 20	16:17	14.0	0.155	5	MID												391				DH59
MAY 25	19:38	11.0	0.082	8	MID																DH59
MAY 31	17:51	18.0	0.060	10	MID												403				DH59

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): W - DAILY MEAN; ICE CONDITIONS

ANTLER RIVER NEAR MELITA - STATION NO. 05NF002

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1976	MAR-OCT	M-S	70	APR 09	4 SEP 16		687	APR 12 *	8 880 *	36.3	36.3	---
1977	MAR-DEC	M-S	34	APR 13	6 JUN 21		0.59	MAY 22	15.3	0.07	16.2	99.5
1978	JAN-DEC	M-C	20	APR 01	6 APR 18		4.61	APR 04	36.1	0.16	12.2	96.9
1979	JAN-DEC	M-C	117	APR 23 *	0 JUL 15 *		312	APR 24	1 430	6.82	10.6	81.8
1980	JAN-DEC	M-C	81	APR 16	8 APR 20		2.77	APR 16	6.85	0.03	8.48	83.1
1981	JAN-DEC	M-C	17	APR 08	7 APR 28		7.93	FEB 27	24.5	0.04	7.07	83.7
1982	JAN-DEC	M-C	84	APR 17	1 MAY 23		170	APR 17	805	2.47	8.41	78.7
1983	JAN-DEC	M-C	27	APR 26	5 MAY 11		29.2	APR 26	284	1.16	5.76	76.7
1984	MAR-MAY	M-C	21	MAR 25	2 APR 21		0.26	APR 02	4.27	0.02	5.12	77.1

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

ASSINIBOINE RIVER AT HEADINGLEY - STATION NO. 05MJ001

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 52 09 N LONG 97 24 10 W
DRAINAGE AREA: 153 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 91 458.7 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

	JAN			FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	17.5 B	30	45.4	20.2 B	48	83.8	15.5 B	35	46.9	1
2	18.7 B	30	48.5	19.5 B	48	80.9	15.2 B	35	46.0	2
3	19.6 B	31 S	52.5	19.0 B	48	78.8	15.2 B	34	44.7	3
4	19.8 B	33	56.5	18.9 B	48	78.4	15.4 B	34	45.2	4
5	20.1 B	35	60.8	18.9 B	48	78.4	15.3 B	33	43.6	5
6	20.3 B	36	63.1	18.8 B	48	78.0	15.0 B	33	42.8	6
7	20.9 B	37	66.8	18.7 B	48	77.6	15.2 B	32	42.0	7
8	21.3 B	37	68.1	18.3 B	47	74.3	15.5 B	31	41.5	8
9	21.5 B	38	70.6	17.9 B	48 S	74.2	15.9 B	31	42.6	9
10	21.4 B	39	72.1	17.9 B	48	74.2	16.0 B	30	41.5	10
11	21.2 B	40	73.3	18.8 B	47	88.2	15.8 B	29	39.6	11
12	21.4 B	40	74.0	17.9 B	47	72.7	15.5 B	28	37.5	12
13	21.3 B	41	75.5	18.4 B	46	73.1	15.4 B	28	37.3	13
14	21.4 B	41	75.8	17.3 B	46	68.8	15.9 B	27	37.1	14
15	21.6 B	42	78.4	17.2 B	46	68.4	16.3 B	26	36.6	15
16	21.5 B	43	79.9	17.4 B	45	67.7	16.2 B	24	33.6	16
17	21.1 B	43	78.4	17.2 B	44	65.4	16.3 B	23	32.4	17
18	20.9 B	43	77.6	16.7 B	43	62.0	16.2 B	22	30.8	18
19	20.8 B	44	78.1	16.4 B	43	60.9	16.2 B	21	29.4	19
20	20.8 B	44	79.1	16.8 B	42	61.0	15.8 B	20	27.3	20
21	20.6 B	45	80.1	16.5 B	41	58.4	15.5 B	19	25.4	21
22	20.3 B	45	78.9	16.4 B	40	56.7	15.7 B	18 S	24.4	22
23	19.9 B	46	78.1	16.3 B	39	54.9	15.7 B	20	27.1	23
24	19.4 B	46	77.1	16.0 B	39	53.9	16.1 B	23	32.0	24
25	19.5 B	46	77.6	15.7 B	38	51.5	16.9 B	27	39.4	25
26	19.7 B	47	80.0	15.6 B	38	51.2	17.1 B	31	45.8	26
27	20.2 B	47	82.0	15.9 B	37	50.8	18.4 B	35	55.6	27
28	20.6 B	47	84.5	16.0 B	36	49.6	19.2 B	40	66.4	28
29	20.8 B	47	84.9	15.8 B	36	49.1	19.8 B	45	77.0	29
30	20.9 B	48	86.7				23.2 B	50	100	30
31	20.7 B	47	84.1				26.7 B	55	127	31
TOTAL	636.0		2 270.4	504.4		1 923.1	518.1		1 398.5	TOTAL

	APR			MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	28.3 B	58	142	18.3	48	87.5	36.7	149	472	1
2	26.5 B	55	126	17.4	61	91.7	36.1	200	624	2
3	24.6 B	47	99.9	15.3	51 S	67.4	37.0	264 S	844	3
4	23.1 B	44	87.8	16.3	51 S	71.8	36.9	180 S	574	4
5	21.7 B	42	78.7	17.9	55 S	85.1	36.7	107	339	5
6	20.6 B	67	119	18.0	58 S	87.1	38.0	110	361	6
7	88.9 B	461	3 420	17.6	51	77.6	40.4	131 S	457	7
8	98.3	399	3 390	16.7	46 S	64.9	41.3	157	560	8
9	70.1	378	2 280	16.9	41 S	59.9	41.2	152 S	541	9
10	52.2	327	1 470	16.5	54 S	86.3	40.9	131	463	10
11	47.0	280 S	1 140	27.0	148 S	345	40.7	119 S	418	11
12	47.3	227 S	928	33.4	241	695	39.6	140	481	12
13	47.8	186 S	686	35.6	281	864	38.1	207 S	681	13
14	47.2	203 S	828	36.1	289	839	37.3	184 S	495	14
15	46.2	198 S	777	36.9	247 S	786	35.7	107	330	15
16	43.3	204 S	763	36.6	219 S	677	36.5	337	1 080	16
17	41.4	202	723	35.6	193	597	67.9	511 S	3 060	17
18	30.6	144 S	381	35.9	191 S	592	57.8	370	1 850	18
19	21.3	95 S	175	37.2	196	630	48.2	299	1 250	19
20	20.6	86 S	153	36.6	171	539	40.6	448 S	1 580	20
21	19.0	50 S	82.1	37.9	130	426	38.0	851	2 790	21
22	18.5	52	74.1	38.2	78 S	261	74.8	548 S	3 540	22
23	16.5	52 S	74.1	37.7	117	381	68.3	302 S	1 780	23
24	16.0	60 S	82.9	38.7	146 S	495	60.2	243	1 260	24
25	15.6	55	74.1	39.5	126 S	430	51.9	220	987	25
26	15.5	54	72.3	40.4	112 S	391	42.2	211	768	26
27	14.9	55	70.8	39.7	115 S	394	37.5	208 S	674	27
28	13.3	45 S	51.7	38.0	173 S	568	35.9	203	630	28
29	14.4	48 S	59.7	37.4	194 S	627	35.0	201	608	29
30	16.8	58	84.2	37.1	137 S	438	33.8	198	578	30
31				37.1	130 S	417				31
TOTAL	1 001.5		18 493.4	941.8		12 132.4	1 306.6		30 016	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ASSINIBOINE RIVER AT HEADINGLEY - STATION NO. 05MJ001

SUSPENDED SEDIMENT FOR 1984

	JUL			AUG			SEP			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	33.0	195 S	556	23.1	123 S	245	7.14	52	32.1	1
2	32.2	193	537	21.4	110	203	6.71	52	30.1	2
3	31.2	189 S	509	20.6	104	185	6.76	52	30.4	3
4	30.0	186 S	482	18.4	98	156	6.94	53	31.6	4
5	29.3	205 S	519	17.0	93	137	7.16	55	34.0	5
6	29.2	213	537	16.5	88	125	7.24	58	36.3	6
7	29.4	215	546	16.5	83	118	6.93	60	35.9	7
8	30.0	221	573	16.0	79	109	6.82	62	37.1	8
9	30.8	236 S	628	15.0	76	98.5	6.80	64	38.2	9
10	31.3	250	676	14.2	74	90.8	7.08	65 S	39.6	10
11	32.5	253	710	13.5	71 S	82.8	7.27	67	42.1	11
12	32.7	252	712	12.8	72 S	79.6	8.49	77	55.5	12
13	32.8	249	706	12.4	71	76.1	9.33	75	60.5	13
14	32.6	246 S	693	11.6	67	67.2	9.38	69	55.9	14
15	32.0	242	669	10.9	63	59.3	9.72	65	54.6	15
16	31.2	239	644	10.3	59	52.5	9.98	60	51.7	16
17	30.5	234	617	10.1	75	65.4	10.2	56	49.4	17
18	29.9	230	594	9.95	116 S	99.7	10.1	53	46.2	18
19	29.3	229	580	9.57	137	113	9.81	49	41.5	19
20	28.3	225	550	10.3	139 S	124	9.60	43	35.7	20
21	27.5	221 S	525	11.2	114	110	10.1	36	31.4	21
22	28.0	217	525	11.0	85	80.8	10.0	30	25.9	22
23	28.2	210	512	11.0	59 S	55.1	9.78	24	20.3	23
24	27.9	202	487	10.6	55	50.4	10.2	18 S	15.9	24
25	27.0	191 S	446	10.0	55	47.5	10.3	16	14.2	25
26	25.3	182	414	9.27	54	43.3	11.9	29	29.8	26
27	26.3	177	402	8.63	54	40.3	15.2	37	48.6	27
28	26.0	172	386	7.98	53 S	35.5	14.0	37	44.8	28
29	25.3	160	350	7.57	52	34.0	13.8	37	44.1	29
30	25.0	149 S	322	7.05	52	31.7	14.3	37	45.7	30
31	24.3	139	292	7.09	52	31.9				31
TOTAL	910.0		16 699	391.51		2 849.4	283.24		1 160.5	TOTAL

	OCT			NOV			DEC			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	13.1	37	41.9	13.4 B	16 S	18.5	21.4 B	33	61.0	1
2	12.5	37	40.0	13.4 B	16	18.5	21.4 B	33	61.0	2
3	12.7	37	40.6	11.5 B	16	15.9	21.2 B	33	60.4	3
4	13.3	36	41.4	10.9 B	16	15.1	22.0 B	33	62.7	4
5	13.8	37	44.1	13.1 B	16	18.1	21.6 B	33	61.6	5
6	13.9	37	44.4	11.6 B	16	16.0	19.4 B	33	55.3	6
7	14.6	37	46.7	10.6 B	16	14.6	17.7 B	34	52.0	7
8	12.6	37	40.3	10.1 B	16	14.0	15.0 B	34	44.1	8
9	12.3	37	39.3	9.52 B	16	13.2	14.6 B	34	42.9	9
10	14.0	38	46.0	9.23 B	16	12.8	15.5 B	35	46.9	10
11	15.2	38	49.9	9.95 B	17	14.8	17.3 B	35	52.3	11
12	16.3	38	53.5	11.2 B	19	18.7	19.0 B	35 S	57.5	12
13	15.9	38	52.2	11.9 B	20	20.6	21.6 B	36	67.2	13
14	15.6	39	52.6	12.6 B	22	24.0	20.7 B	37	66.2	14
15	15.2	39	51.2	14.0 B	23	27.6	18.6 B	38	61.1	15
16	16.0	39	53.9	16.2 B	25	35.0	17.6 B	39	59.3	16
17	16.5	39	55.6	21.3 B	26	47.6	16.0 B	40	62.2	17
18	15.5	39	52.2	21.6 B	28	52.3	15.6 B	41	55.3	18
19	15.0	40	51.8	22.0 B	29	55.1	16.1 B	42	58.4	19
20	17.8	40	61.5	21.8 B	31	58.4	17.6 B	43	65.1	20
21	20.4	41	72.3	19.0 B	32 S	52.5	17.6 B	44	66.9	21
22	19.1	41	67.7	15.4 B	32	42.6	16.6 B	44	63.9	22
23	20.3	42	73.7	17.9 B	32	49.5	15.0 B	46	58.3	23
24	24.1	42	87.5	18.3 B	32	53.4	15.9 B	46	63.2	24
25	26.6	39	85.9	18.3 B	32	53.4	17.3 B	47	70.3	25
26	24.1	32	66.6	20.8 B	32	57.5	17.6 B	48	73.0	26
27	18.7	25	40.4	24.6 B	32	68.0	17.6 B	49	75.4	27
28	12.1	19	19.9	25.3 B	32	69.9	16.0 B	51	70.5	28
29	9.06 B	18	14.1	23.1 B	33	65.9	15.5 B	52	69.6	29
30	8.74 B	17	14.3	20.6 B	33	59.3	16.6 B	53	76.0	30
31	7.69 B	17	11.1				17.2 B	54	80.2	31
TOTAL	482.49		1 512.6	481.30		1 082.6	555.8		1 920.8	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ASSINIBOINE RIVER AT HEADINGLEY - STATION NO. 05MJ001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP (°C)	INSTANT. DISCHARGE (m^3/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JAN 03	11:00	0.5	19.6 W	30	75.0												793				DH48
FEB 09	12:40	0.5	17.9 W	48	75.0												627				DH48
MAR 22	13:20	0.5	4.19 B	10	45.0 M												758				DH48
MAR 22	13:35	0.5	3.87 B	30	70.0 M												732				DH48
MAR 22	13:40	0.5	3.42 B	22	80.0 M												754				DH48
MAR 22	13:45	0.5	1.99 B	18	110 M												766				DH48
MAR 22	13:50	0.5	2.20 B	25	125 M												718				DH48
APR 11	14:00	7.0	8.19	275	45.0 M												534				DH59
APR 11	14:05	7.0	8.43	278	80.0 M												548				DH59
APR 11	14:10	7.0	8.74	279	75.0 M												553				DH59
APR 11	14:15	7.0	8.76	273	85.0 M												547				DH59
APR 11	14:20	7.0	8.65	283	120 M												548				DH59
APR 12	14:30	8.0	47.5	225	75.0																DH59
APR 13	15:45	9.0	47.5	180	75.0																DH59
APR 14	17:20	9.0	46.9	214	75.0																DH59
APR 15	15:35	10.0	44.8	191	75.0																DH59
APR 16	18:05	10.0	43.0	205	75.0																DH59
APR 18	18:40	11.0	28.0	113	75.0																DH59
APR 19	18:40	12.0	18.8	101	75.0																DH59
APR 20	18:00	14.0	20.1	55	75.0																DH59
APR 21	15:45	16.0	18.1	41	75.0												486				DH59
APR 23	18:30	15.0	15.8	50	75.0																DH59
APR 24	19:20	13.0	15.5	50	75.0																DH59
APR 28	14:15	8.0	13.3	40	75.0																DH59
APR 30	19:15	5.0	15.2	41	75.0												486				DH59
MAY 03	19:15	12.0	14.7	46	75.0																DH59
MAY 04	12:30	13.0	2.98	55	45.0 M																DH59
MAY 04	12:35	13.0	3.14	45	60.0 M												495				DH59
MAY 04	12:40	13.0	3.53	45	75.0 M												497				DH59
MAY 04	12:45	13.0	3.16	46	95.0 M												499				DH59
MAY 04	12:50	13.0	3.62	56	115 M												504				DH59
MAY 04	17:20	12.0	16.8	45	75.0												498				DH59
MAY 05	19:45	11.0	17.9	51	75.0																DH59
MAY 06	18:15	12.0	17.9	50	75.0																DH59
MAY 08	18:45	10.0	16.5	36	75.0																DH59
MAY 09	18:40	12.0	16.9	37	75.0																DH59
MAY 10	18:00	12.0	18.8	63	75.0																DH59
MAY 11	15:25	10.0	28.4	150	75.0												481				DH59
MAY 15	19:55	15.0	35.9	246	75.0												488				DH59
MAY 18	21:00	17.0	35.9	215	75.0												491				DH59
MAY 18	20:30	14.0	36.4	208	75.0												550				DH59
MAY 22	19:40	15.0	38.1	77	75.0												563				DH59
MAY 24	19:45	11.0	39.0	165	75.0												557				DH59
MAY 25	20:15	10.0	40.2	129	75.0																DH59
MAY 26	19:30	12.0	40.4	130	75.0																DH59
MAY 27	19:45	15.0	39.4	131	75.0												578				DH59
MAY 28	21:10	16.0	37.6	245	75.0																DH59
MAY 30	20:30	16.0	36.9	134	75.0																DH59
MAY 31	11:00	18.0	5.90	144	45.0 M																DH59
MAY 31	11:05	18.0	6.80	148	60.0 M												590				DH59
MAY 31	11:10	18.0	6.17	148	75.0 M												587				DH59
MAY 31	11:15	18.0	5.98	119	90.0 M												586				DH59
MAY 31	11:20	18.0	10.3	102	110 M												583				DH59
JUN 03	19:30	19.0	37.1	310	75.0												582				DH59
JUN 04	19:00	17.0	36.8	147	75.0																DH59
JUN 07	19:40	18.0	40.8	157	75.0																DH59
JUN 09	18:40	16.0	40.7	182	75.0												579				DH59
JUN 11	20:00	17.0	40.3	604	75.0																DH59
JUN 13	18:30	18.0	37.7	244	75.0	13	19	26	43	63	75	94	99	100			614	21	60	19	DH59
JUN 14	18:30	19.0	36.7	133	75.0																DH59
JUN 17	20:45	21.0	67.0	452	75.0																DH59
JUN 20	21:45	23.0	37.7	859	75.0	51	67	78	85	95	99	99	100				382	1	32	67	DH59
JUN 22	19:15	21.0	77.7	445	75.0	21	36	43	58	79	90	99	100				508	10	54	36	DH59
JUN 23	12:00		67.9 H	323	75.0																DH59
JUN 27	12:00		37.1 H	226	75.0	3*	50	68	75	94	99	100					353	1	49	50	DH59
JUL 01	16:25	23.0	32.6	507	75.0	3	46	69	82	94	98	99	100				506	2	50	48	DH59
JUL 03	19:30	22.0	30.7	201	75.0																DH59
JUL 04	20:30	22.0	29.6	201	75.0																DH59
JUL 05	12:00	23.0	5.37	228	45.0 M																DH59
JUL 05	12:05	23.0	5.92	239	60.0 M												625				DH59
JUL 05	12:10	23.0	6.42	222	75.0 M												616				DH59
JUL 05	12:15	23.0	6.46	188	95.0 M												621				DH59
JUL 05	12:20	23.0	5.57	166	120 M												617				DH59
JUL 09	20:15	23.0	30.8	536	75.0												615				DH59
JUL 14	18:50	23.0	32.4	255	75.0																DH59
JUL 21	20:00	23.0	27.4	226	75.0												565				DH59
JUL 25	20:15	24.0	26.6	187	75.0												562				DH59
JUL 30	20:00	23.0	24.9	145	75.0																DH59
AUG 01	19:00	25.0	22.6	115	75.0												537				DH59
AUG 11	19:30	27.0	13.1	83	75.0																DH59
AUG 12	17:15	25.0	12.7	73	75.0												531				DH59
AUG 18	17:55	24.0	8.93	126	75.0																DH59
AUG 20	21:15	21.0	10.9	126	75.0												581				DH59
AUG 23	13:00	21.0	1.87	72	45.0 M																DH59
AUG 23	13:05	21.0	2.16	56	60.0 M												564				DH59
AUG 23	13:10	21.0	2.30	36	75.0 M												564				DH59
AUG 23	13:15	21.0	2.15	56	95.0 M												562				DH59
AUG 23	13:20	21.0	2.04	63	115 M												564				DH59
AUG 28	20:00	20.0	7.66	585	75.0												573				DH59
SEP 10	20:00	12.0	7.10	65	75.0												556				DH59
SEP 24	10:15	8.0	1.52	18	45.0 M												562				DH59
SEP 24	10:20	8.0	2.37	19	60.0 M												552				DH59
SEP 24	10:25	8.0	2.44	18	75.0 M												548				DH59
SEP 24	10:30	8.0	1.80	18	85.0 M												562				DH59
SEP 24	10:35	8.0	1.79	16	115 M												568				DH59
NOV 01	09:30	0.5	13.4 B	16	35.0 Z												560				DH59
NOV 21	09:30	0.5	3.68 B	30	10.0 Z												622				DH59
NOV 21	09:35	0.5	3.68 B	31	30.0 Z												719				DH48
NOV 21	09:40	0.5	3.70 B	34	45.0 Z												725				DH48
NOV 21	09:45	0.5	3.88 B	32	60.0 Z												735				DH48
NOV 21	09:50	0.5	4.16 B	32	80.0 Z												716				DH48
DEC 12	09:10	0.5	19.0 W	35	75.0												724				DH48
																	801				DH48

NOTE : SINGLE VERTICAL LOCATED AT 75.0 METRES

DISCHARGE SYMBOL(S): B - ICE CONDITIONS H - DAILY MEAN W - DAILY MEAN, ICE CONDITIONS

VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

Z - A SEDIMENT MEASUREMENT VERTICAL NOT AT THE REGULAR MEASUREMENT CROSS-SECTION

ASSINIBOINE RIVER AT HEADINGLEY - STATION NO. 05MJ001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1956	APR-JUN	M-S	870	APR 25	110	MAY 31	40 200	APR 26	644 000	---	---	---
1957	APR-JUN	M-S	1 370	MAY 02	170	JUN 24	24 100	MAY 02	630 000	---	---	---
1958	APR-APR	M-S	2 270	APR 08 *	125	APR 30	48 000	APR 06	286 000	---	---	---
1959	APR-APR	M-S	1 890	APR 15	205	APR 30	19 300	APR 15	87 200	---	---	---
1961	APR-DEC #	M-S	790	APR 20	13	AUG 21	3 530	APR 15	17 500	---	---	---
1962	JAN-DEC	M-C	1 410	APR 24	20	JAN 23	37 300	APR 24	283 000	776	776	---
1963	JAN-DEC	M-C	1 480	APR 11	42	MAR 26	18 200	APR 11	257 000	705	741	4 8
1964	JAN-DEC	M-C	1 490	APR 18	16	APR 10	29 400	APR 18	320 000	874	785	6 2
1965	JAN-DEC	M-C	1 370	APR 18	22	NOV 25	37 200	APR 18	596 000	1 630	996	21 5
1966	JAN-DEC	M-C	935	APR 13	20	FEB 14	22 900	APR 13	532 000	1 480	1 090	17 4
1967	JAN-DEC	M-C	1 170	APR 20	14	DEC 01	22 200	APR 20	413 000	1 130	1 100	14 1
1968	JAN-DEC	M-C	1 000	APR 12	11	NOV 20	12 000	APR 11	161 000	440	1 000	16 1
1969	JAN-DEC	M-C	2 110	APR 16	4	MAR 21 *	56 900	APR 17 *	887 000	2 430	1 180	19 2
1970	JAN-DEC	M-C	1 080	APR 30	27	OCT 07	24 600	APR 30	577 000	1 580	1 230	16 6
1971	JAN-DEC	M-C	835	APR 17	28	MAR 26	9 960	APR 17	409 000	1 120	1 210	16 2
1972	JAN-DEC	M-C	944	MAY 03	13	AUG 26	13 900	MAY 03	548 000	1 500	1 240	13 5
1973	JAN-DEC	M-C	429	APR 05	42	FEB 14	2 320	APR 05	81 200	222	1 180	15 1
1974	JAN-DEC	M-C	1 680	APR 23	68	OCT 21	49 400	APR 23	844 000	2 310	1 240	14 8
1975	JAN-DEC	M-C	1 390	MAY 03	42	APR 03	21 600	MAY 03	835 000	2 290	1 320	14 1
1976	JAN-DEC	M-C	1 220	APR 15	48	JAN 19	36 200	APR 15	1 090 000 *	2 980	1 430	14 3
1977	JAN-DEC	M-C	204	APR 13	13	MAR 16	1 030	APR 13	46 700	128	1 350	15 4
1978	JAN-DEC	M-C	1 160	APR 21	93	OCT 04	14 200	APR 21	232 000	637	1 310	15 3
1979	JAN-DEC	M-C	1 180	APR 21	47	SEP 12	26 300	APR 26	1 020 000	2 800	1 390	14 8
1980	JAN-DEC	M-C	845	APR 17	27	MAR 20	7 290	APR 17	106 000	290	1 330	15 3
1981	JAN-DEC	M-C	306	APR 06	11	SEP 28	1 190	APR 02	35 600	97 7	1 270	15 9
1982	JAN-DEC	M-C	1 160	APR 19	8	MAR 29	28 100	APR 18	265 000	727	1 240	15 7
1983	JAN-DEC	M-C	965	APR 19	41	DEC 14	17 800	APR 19	465 000	1 270	1 240	14 9
1984	JAN-DEC	M-C	859	JUN 20	10	MAR 22	3 540	JUN 22	91 500	250	1 200	15 2

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

MANITOBA

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 41 54 N LONG 99 53 55 W
DRAINAGE AREA: 152 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 49 557.7 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

	JAN			FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	19.8 B	21	35.9	20.7 B	33	59.0	16.9 B	33	45.3	1
2	20.0 B	21	36.3	20.6 B	33	58.7	15.4 B	33	43.5	2
3	20.7 B	21	37.6	20.5 B	33	58.4	17.4 B	33	49.6	3
4	21.3 B	21	38.6	19.7 B	33	56.2	16.7 B	32	46.3	4
5	21.6 B	21	39.2	18.4 B	33	52.5	18.4 B	32	50.9	5
6	21.5 B	21 S	39.0	19.0 B	33	54.2	17.1 B	32	47.3	6
7	20.9 B	21	37.9	15.2 B	33	43.3	16.2 B	32	44.8	7
8	20.9 B	21	37.9	20.5 B	33 S	58.4	16.9 B	33	45.3	8
9	21.2 B	21	38.5	21.5 B	33	61.3	16.7 B	33	44.8	9
10	20.4 B	21	37.0	17.7 B	33	50.5	17.7 B	33	50.5	10
11	20.8 B	21	37.7	18.1 B	33	54.5	17.5 B	33	49.9	11
12	21.0 B	22	39.9	19.5 B	33	55.6	17.5 B	33 S	49.9	12
13	20.6 B	22	39.2	19.9 B	33	56.7	18.2 B	34	53.5	13
14	20.4 B	22	38.8	18.7 B	33	53.3	18.7 B	34	54.9	14
15	21.1 B	22	40.1	18.8 B	33	53.6	18.7 B	35	56.5	15
16	21.5 B	22	40.9	20.9 B	33	59.6	17.0 B	36	52.9	16
17	21.1 B	21	38.3	19.8 B	33	56.5	17.6 B	37	56.3	17
18	21.3 B	21	38.6	21.4 B	33	61.0	18.6 B	38	61.1	18
19	20.5 B	21	37.2	20.6 B	33	58.7	18.7 B	38	61.4	19
20	19.5 B	21	35.4	20.1 B	33	57.3	18.5 B	39	62.3	20
21	20.7 B	21	37.6	19.7 B	33	56.2	18.4 B	39	62.0	21
22	21.4 B	22	40.7	22.1 B	33	63.0	18.3 B	40	63.2	22
23	22.5 B	25	48.6	22.2 B	33	63.3	19.8 B	40	68.4	23
24	23.1 B	28	55.9	22.4 B	33	63.9	21.0 B	40	72.6	24
25	23.4 B	31	62.7	21.5 B	33	61.3	23.7 B	44	90.1	25
26	23.4 B	33	66.7	19.1 B	33	54.5	30.7 B	90	239	26
27	23.1 B	34	67.9	16.9 B	33	48.2	35.9 B	95	296	27
28	22.6 B	34	66.4	17.2 B	33	49.0	34.1 B	90	265	28
29	21.2 B	34	62.3	17.4 B	33	49.6	28.6 B	84	209	29
30	20.3 B	34	59.6				25.9 B	79	177	30
31	20.5 B	34	60.2				26.4 B	77	189	31
TOTAL	658.3		1 392.6	571.1		1 628.3	628.6		2 740.6	TOTAL

	APR			MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	25.4 B	75	165	19.9	30 S	51.6	40.4	80	278	1
2	26.1 B	74	167	19.4	26	43.6	40.5	84 S	284	2
3	27.7 B	72	172	18.4	21	33.4	40.8	82 S	289	3
4	28.3 B	71	174	18.0	17 S	26.4	40.7	75 S	264	4
5	41.8 B	168	607	18.0	16 S	24.9	40.5	70	245	5
6	56.1 B	200	989	17.6	15 S	22.8	40.0	70	242	6
7	47.4	191	782	26.4	73 S	167	43.0	80 S	297	7
8	43.2	183	608	37.9	184 S	603	41.9	97 S	351	8
9	43.9	156	592	39.5	146	498	40.8	76 S	268	9
10	44.8	152 S	586	38.6	99 S	330	38.7	65 S	217	10
11	45.3	129 S	505	38.5	76	253	37.0	61 S	195	11
12	44.0	114	433	38.0	71	233	37.3	70 S	226	12
13	42.1	103 S	375	36.8	70	235	37.1	78 S	250	13
14	40.8	92	324	40.3	80	278	35.1	62 S	188	14
15	38.5	82 S	273	41.4	104	372	33.3	66 S	187	15
16	35.1	74 S	224	41.6	131	470	32.8	63 S	179	16
17	31.6	66 S	175	39.9	146	503	31.8	63	173	17
18	28.5	51 S	126	39.6	144 S	493	31.6	73	199	18
19	26.6	39 S	89.3	39.7	137	470	33.0	91 S	259	19
20	26.1	39 S	84.8	40.6	129	453	30.4	80 S	210	20
21	23.8	51 S	105	41.9	117	424	29.1	87 S	219	21
22	22.8	41 S	80.8	42.7	101	373	27.5	92 S	218	22
23	22.3	46 S	82.5	42.8	86 S	317	25.5	106 S	234	23
24	21.4	41 S	75.6	41.4	116 S	415	27.8	122 S	283	24
25	19.8	35 S	59.9	40.8	93	349	31.7	155 S	425	25
26	17.8	30 S	45.8	40.7	85 S	229	33.1	184 S	526	26
27	16.5 B	30	42.8	40.6	87 S	200	33.8	198 S	576	27
28	20.6 B	29	51.6	40.3	87 S	233	33.5	196 S	567	28
29	20.3 B	29	50.9	40.1	78	270	33.0	210 S	599	29
30	19.2	29	48.1	40.1	76 S	263	33.0	211	602	30
31				40.2	75	260				31
TOTAL	846.3		8 083.9	1 103.4		5 894.7	1 054.7		8 054	TOTAL

B - ICE CONDITIONS S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005

SUSPENDED SEDIMENT FOR 1984

JUL				AUG			SEP			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	32.7	190	537	18.1	47 S	73.5	7.10	26	15.9	1
2	32.3	174 S	486	17.2	44	65.4	7.17	26	18.1	2
3	32.4	176 S	493	16.4	42	59.5	7.31	26	16.4	3
4	32.5	175 S	491	15.3	40	52.9	7.27	26	16.3	4
5	32.6	174 S	490	14.1	37	45.1	7.37	25 S	16.9	5
6	33.7	170 S	495	12.6	34 S	37.0	7.56	26	17.0	6
7	35.2	171	520	12.2	25 S	36.4	7.67	26	17.2	7
8	36.2	176 S	550	12.0	32 S	33.2	7.56	26	17.0	8
9	36.9	210 S	670	11.3	30 S	29.3	7.60	27 S	17.7	9
10	36.6	220 S	699	10.3	27 S	24.0	7.61	26	17.5	10
11	35.9	193	599	9.76	25	21.1	7.99	21 S	14.5	11
12	35.1	177 S	537	9.20	23	18.2	8.69	25	20.9	12
13	35.0	179 S	541	8.92	21	16.2	10.0	28	24.2	13
14	34.6	188 S	565	8.62	21	15.0	10.1	26	22.7	14
15	33.8	184 S	537	9.41	26	21.1	11.0	25	23.8	15
16	33.3	142 S	409	10.9	33	31.1	10.8	24	22.4	16
17	32.3	147 S	410	11.8	32	32.6	10.3	23	20.5	17
18	31.2	138 S	372	11.4	31	30.5	10.2	21	18.5	18
19	30.7	113 S	300	10.5	31	28.1	9.96	20	17.2	19
20	30.6	105 S	278	9.69	30	25.1	9.70	19	15.9	20
21	30.1	99 S	257	8.70	29	21.6	9.57	18	14.9	21
22	28.8	110 S	274	8.19	29	20.5	9.84	16	13.6	22
23	28.2	103 S	251	8.10	28	19.6	9.65	15	12.8	23
24	29.1	106 S	267	8.09	27	18.9	10.5	13	11.8	24
25	28.4	101 S	248	8.06	26	18.1	10.4	14 S	12.6	25
26	28.0	104 S	252	7.71	25	16.7	10.3	17	15.1	26
27	26.6	96 S	222	8.94	25 S	15.0	9.97	17	14.6	27
28	24.7	79 S	168	7.24	25	15.6	9.64	16	13.2	28
29	22.5	69 S	134	7.25	25	15.7	9.58	16	13.2	29
30	21.1	55 S	100	7.10	25	15.3	9.51	16	13.1	30
31	19.6	55 S	84.8	7.12	26	16.0				31
TOTAL	861.5		12 248.8	324.39		879.6	273.24		502.5	TOTAL

OCT				NOV			DEC			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	9.53	16	13.2	17.2 B	22	32.7	18.2 B	29	45.6	1
2	9.54	16	13.2	15.0 B	22	28.5	21.3 B	29	53.4	2
3	9.91	16	13.7	12.6 B	22	24.0	21.4 B	29	53.6	3
4	10.9	16	15.1	18.9 B	22	35.9	19.4 B	26	46.9	4
5	10.7	16	14.8	22.3 B	21 S	40.5	22.2 B	26	53.7	5
6	11.2	16	15.5	22.8 B	21	41.4	26.6 B	28	64.4	6
7	10.2	16	14.1	19.4 B	22	36.9	24.2 B	26	58.5	7
8	10.1	16	14.0	17.6 B	22	33.5	23.3 B	27	54.4	8
9	10.3	16	13.3	17.0 B	22	32.3	25.5 B	27	59.5	9
10	10.7	16	14.8	16.1 B	23	32.0	23.5 B	27	54.8	10
11	12.0	16	16.6	15.0 B	23	29.8	20.6 B	26 S	46.3	11
12	12.3	16	17.0	13.8 B	23	27.4	22.9 B	26	51.4	12
13	12.1	16	16.7	16.4 B	24	31.9	26.5 B	26	59.5	13
14	12.1	16	16.7	15.9 B	26	34.3	22.1 B	26	49.6	14
15	12.6	17	18.5	17.6 B	26	38.0	24.1 B	26	54.1	15
16	15.1	19	24.8	18.4 B	26	41.3	26.2 B	26	58.9	16
17	16.4	22	31.2	14.7 B	27	34.3	26.1 B	26	58.6	17
18	18.5	26	41.6	13.5 B	28	32.7	25.2 B	26	56.6	18
19	18.6	30	46.2	19.7 B	28	47.7	20.8 B	26	50.3	19
20	20.7	31	55.4	17.9 B	29 S	44.9	24.6 B	30	63.8	20
21	20.6	30	53.4	14.0 B	29	35.1	23.9 B	32	66.1	21
22	21.3	30	55.2	17.7 B	29	44.3	23.2 B	35	70.2	22
23	20.3	29	50.9	21.2 B	29	53.1	23.2 B	36	76.2	23
24	19.6	29	49.1	19.2 B	29	48.1	17.7 B	41	62.7	24
25	20.4	28	49.4	14.8 B	29	37.1	19.2 B	44	73.0	25
26	22.1	27	51.6	15.8 B	29	39.1	21.2 B	48	87.8	26
27	22.6	27	53.2	17.8 B	29	44.8	21.3 B	51	93.8	27
28	23.7 B	26	53.2	18.1 B	29	46.4	21.5 B	53	96.8	28
29	24.7 B	24	51.2	17.2 B	29	43.1	22.3 B	53	102	29
30	17.6 B	23	35.0	17.3 B	29	43.3	23.6 B	53	108	30
31	14.7 B	23	29.2				23.4 B	53	107	31
TOTAL	481.26		959.8	513.8		1 133.5	706.2		2 039.4	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)		PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND SILT CLAY	TYPE OF SAMPLER
JAN 05	12:00	0.5	21.5	W	23	44.0	X												725		DH48
FEB 06	11:30	0.5	20.5	W	38	52.0	X												858		DH48
MAR 12	13:00	0.5	3.02	B	22	18.0	M												746		DH48
MAR 12	13:05	0.5	4.62	B	41	34.0	M												714		DH48
MAR 12	13:10	0.5	4.81	B	39	50.0	M												732		DH48
MAR 12	13:15	0.5	3.23	B	16	86.0	M												754		DH48
MAR 12	13:20	0.5	1.63	B	44	82.0	M												729		DH48
APR 10	11:00	7.0	44.1		175	MID													509		DH59
APR 11	10:00	7.0	45.2		145	MID															DH59
APR 13	13:00	7.0	14.2		95	35.0	M												424		DH59
APR 13	13:05	7.0	9.28		113	45.0	M												428		DH59
APR 13	13:10	7.0	8.54		108	60.0	M												418		DH59
APR 13	13:15	7.0	5.90		101	72.0	M												424		DH59
APR 13	13:20	7.0	3.85		84	84.0	M												422		DH59
APR 13	15:00	7.0	42.2		113	MID															DH59
APR 15	11:00	8.0	38.8		91	MID															DH59
APR 16	08:00	8.0	35.7		84	MID															DH59
APR 17	08:00	8.0	32.0		72	MID															DH59
APR 18	08:00	8.0	28.7		58	MID															DH59
APR 19	08:00	10.0	26.4		43	MID															DH59
APR 20	08:00	11.0	24.4		38	MID															DH59
APR 21	08:00	11.0	23.5		55	MID													443		DH59
APR 22	08:00	12.0	22.3		42	MID															DH59
APR 23	07:00	12.0	22.1		53	MID															DH59
APR 24	08:30	12.0	21.7		46	MID															DH59
APR 25	08:00	12.0	20.0		38	MID													442		DH59
APR 26	08:00	12.0	17.8		32	MID															DH59
MAY 01	09:15	5.0	18.6		32	MID													481		DH59
MAY 01	12:00	5.0	3.70		29	26.0	M												480		DH59
MAY 01	12:05	5.0	4.78		27	40.0	M												478		DH59
MAY 01	12:10	5.0	4.28		42	52.0	M												480		DH59
MAY 01	12:15	5.0	4.27		30	64.0	M												474		DH59
MAY 01	12:20	5.0	2.81		26	80.0	M												473		DH59
MAY 04	15:30	11.0	10.1		17	MID															DH59
MAY 05	08:30	10.0	17.7		17	MID															DH59
MAY 06	09:00	8.0	17.5		18	MID															DH59
MAY 07	15:30	10.0	31.5		109	MID													477		DH59
MAY 08	16:00	11.0	39.0		194	MID															DH59
MAY 10	11:00	11.0	38.8		104	MID													576		DH59
MAY 16	11:00	15.0	39.7		188	MID													583		DH59
MAY 23	20:00	15.0	41.8		94	MID													580		DH59
MAY 24	09:00	14.0	41.6		142	MID													572		DH59
MAY 26	09:00	12.0	40.6		76	MID													579		DH59
MAY 27	18:00	15.0	40.7		66	MID															DH59
MAY 28	08:00	14.0	40.2		73	MID															DH59
MAY 30	09:00	13.0	40.3		87	MID													586		DH59
JUN 02	13:00	16.0	40.5		97	MID															DH59
JUN 03	09:00	16.0	40.7		94	MID															DH59
JUN 04	08:00	16.0	40.7		86	MID															DH59
JUN 04	09:00	17.0	40.9		85	MID													606		DH59
JUN 04	13:30	17.0	7.14		66	28.0	M												598		DH59
JUN 04	13:35	17.0	8.23		74	40.0	M												609		DH59
JUN 04	13:40	17.0	8.90		79	52.0	M												610		DH59
JUN 04	13:45	17.0	8.91		76	64.0	M												599		DH59
JUN 04	13:50	17.0	8.46		86	80.0	M												604		DH59
JUN 07	11:00	18.0	43.6		85	MID													597		DH59
JUN 08	09:00	18.0	41.7		116	MID													596		DH59
JUN 09	13:00	16.0	40.7		83	MID													605		DH59
JUN 10	10:00	15.0	38.9		72	MID													621		DH59
JUN 11	10:00	17.0	37.1		64	MID													634		DH59
JUN 12	09:00	17.0	36.8		64	MID															DH59
JUN 13	08:00	17.0	37.4		65	MID															DH59
JUN 14	19:00	18.0	34.8		61	MID															DH59
JUN 15	19:00	21.0	32.5		59	MID															DH59
JUN 16	13:00	22.0	33.2		65	MID															DH59
JUN 19	09:00	21.0	33.4		94	MID															DH59
JUN 20	20:00	24.0	28.7		77	MID													637		DH59
JUN 21	11:00	21.0	28.6		91	MID															DH59
JUN 22	13:00	23.0	27.4		92	MID															DH59
JUN 23	10:00	20.0	26.5		107	MID															DH59
JUN 24	10:00	20.0	27.2		118	MID															DH59
JUN 25	19:00	24.0	32.5		165	MID															DH59
JUN 26	19:00	24.0	33.4		194	MID															DH59
JUN 27	18:00	24.0	34.0		200	MID															DH59
JUN 28	10:00	24.0	33.5		197	MID													559		DH59
JUN 29	19:00	26.0	33.0		219	MID															DH59
JUL 02	09:00	22.0	32.3		174	MID															DH59
JUL 03	15:00	24.0	32.6		180	MID													589		DH59
JUL 04	18:00	23.0	32.6		175	MID															DH59
JUL 05	18:00	20.0	33.0		175	MID															DH59
JUL 06	05:30	19.0	33.7		174	MID													584		DH59
JUL 06	12:00	20.0	5.47		174	28.0	M												586		DH59
JUL 06	12:05	20.0	7.82		172	40.0	M												586		DH59
JUL 06	12:10	20.0	7.25		169	52.0	M												585		DH59
JUL 06	12:15	20.0	7.60		166	64.0	M												585		DH59
JUL 06	12:20	20.0	4.90		167	80.0	M												573		DH59
JUL 06	16:30	22.0	36.2		170	MID															DH59
JUL 08	20:00	21.0	38.4		180	MID															DH59
JUL 09	11:00	21.0	37.0		210	MID													531		DH59
JUL 10	09:00	20.0	38.9		226	MID															DH59
JUL 12	13:00	22.0	35.3		179	MID															DH59
JUL 13	16:00	25.0	35.3		165	MID															DH59
JUL 14	13:00	23.0	35.2		189	MID															DH59
JUL 15	10:00	21.0	33.8		198	MID															DH59
JUL 16	09:00	21.0	33.4		143	MID															DH59
JUL 17	09:00	20.0	32.4		150	MID															DH59
JUL 18	08:30	21.0	31.2		147	MID													527		DH59
JUL 19	09:20	21.0	30.6		114	MID															DH59
JUL 20	08:00	21.0	30.6		109	MID															DH59
JUL 21	18:00	20.0	30.0		100	MID															DH59
JUL 22	10:00	18.0	29.6		116	MID															DH59
JUL 23	10:30	22.0	28.2		104	MID															DH59
JUL 24	08:00	22.0	29.3		109	MID															DH59

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JUL 25	09:00	22.0	28.4	102	MID												532				DH59
JUL 26	09:30	22.0	28.2	107	MID																DH59
JUL 27	11:00	24.0	27.1	100	MID																DH59
JUL 28	10:00	24.0	24.9	82	MID																DH59
JUL 29	08:30	24.0	22.7	75	MID																DH59
JUL 30	08:30	23.0	21.2	58	MID																DH59
JUL 31	17:00	25.0	18.4	60	MID																DH59
AUG 01	08:30	22.0	18.0	49	MID												518				DH59
AUG 06	09:00	23.0	12.5	35	MID																DH59
AUG 07	19:00	25.0	12.5	25	MID																DH59
AUG 08	09:00	22.0	11.1	32	MID												540				DH59
AUG 09	09:00	20.0	11.1	32	MID												523				DH59
AUG 10	06:30	19.0	10.2	38	MID																DH59
AUG 27	11:00	22.0	5.93	27	MID												550				DH59
AUG 27	16:00	26.0	0.930	40	24.0 M												545				DH59
AUG 27	16:05	26.0	2.04	24	40.0 M												548				DH59
AUG 27	16:10	26.0	1.61	23	52.0 M												540				DH59
AUG 27	16:15	26.0	1.65	22	64.0 M												538				DH59
AUG 27	16:20	26.0	0.710	23	80.0 M												533				DH59
SEP 05	09:00	13.0	7.32	27	MID												535				DH59
SEP 08	11:00	14.0	7.63	28	MID																DH59
SEP 11	11:00	13.0	8.00	21	MID												524				DH59
SEP 25	14:00	6.0	2.51	11	32.0 M												551				DH59
SEP 25	14:05	6.0	2.54	12	44.0 M												550				DH59
SEP 25	14:10	6.0	2.24	11	56.0 M												551				DH59
SEP 25	14:15	6.0	2.17	12	68.0 M												553				DH59
SEP 25	14:20	6.0	0.890	17	80.0 M												534				DH59
SEP 25	14:30	6.0	10.3	15	MID												535				DH59
NOV 05	09:45	0.5	22.3 W	22	MID												598				DH59
NOV 20	12:00	0.5	3.88 B	27	28.0 M												834				DH48
NOV 20	12:05	0.5	4.05 B	32	40.0 M												835				DH48
NOV 20	12:10	0.5	3.64 B	30	52.0 M												830				DH48
NOV 20	12:15	0.5	4.68 B	28	64.0 M												826				DH48
NOV 20	12:20	0.5	2.80 B	25	80.0 M												829				DH48
DEC 11	11:20	0.5	20.6 W	27	52.0												714				DH48

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN, ICE CONDITIONS
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

ASSINIBOINE RIVER NEAR HOLLAND - STATION NO. 05MH005

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1970	JUL-NOV	M-S	743	JUL 28	19	OCT 12	6 310	JUL 28	112 000	---	---	---
1971	APR-SEP	M-S	1 420	APR 17	29	SEP 17	22 800	APR 17	486 000	---	---	---
1972	APR-NOV	M-S	1 300	APR 18	25	AUG 30	35 300	APR 18	701 000	---	---	---
1973	APR-SEP	M-S	485	JUL 05	39	APR 30	1 070	JUL 05	39 000	---	---	---
1974	JAN-DEC	M-S	1 580	APR 20	5	FEB 12	86 800	APR 20 *	1 320 000	3 610	3 610	---
1975	JAN-DEC	M-C	1 340	APR 21	24	JAN 07	38 300	APR 30	1 340 000	3 670	3 840	0.8
1976	JAN-DEC	M-C	1 310	APR 06	23	OCT 29	86 400	APR 12	1 910 000 *	5 230	4 170	12.7
1977	JAN-DEC	M-C	128	MAY 22	14	MAR 14	529	JUL 13	44 700	122	3 180	34.2
1978	JAN-DEC	M-C	946	APR 10	19	JAN 12	14 500	APR 09	169 000	463	2 620	35.0
1979	JAN-DEC	M-C	2 670	APR 22 *	26	SEP 21	75 100	APR 23	1 630 000	4 470	2 930	29.7
1980	JAN-DEC	M-C	550	APR 17	22	OCT 21	4 970	APR 17	73 700	201	2 540	32.7
1981	JAN-DEC	M-C	200	AUG 27	20	JAN 05	493	AUG 26	33 100	90.7	2 230	35.1
1982	JAN-DEC	M-C	1 790	APR 16	5	OCT 18 *	37 000	APR 16	314 000	861	2 080	34.0
1983	JAN-DEC	M-C	1 250	APR 21	25	OCT 13	29 700	APR 11	575 000	1 580	2 030	31.2
1984	JAN-DEC	M-C	226	JUL 10	11	SEP 25	989	APR 06	49 500	135	1 880	32.2

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

ASSINIBOINE RIVER NEAR PORTAGE LA PRAIRIE - STATION NO. 05MJ003

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1956	APR-MAY	M-S	1 200	APR 20	305	MAY 04	63 800	APR 21	913 000	---	---	---
1957	APR-JUN	M-S	1 120	APR 29	185	JUN 12	20 600	MAY 06	823 000	---	---	---
1958	APR-APR	M-S	1 800	APR 10	135	APR 30	30 500	APR 10	113 000	---	---	---
1959	APR-APR	M-S	910	APR 15	95	APR 28	18 900	APR 10	89 600	---	---	---
1961	APR-APR	M-S	400	APR 20	170	APR 27	1 390	APR 18	8 080	---	---	---
1962	APR-DEC	M-S	885	AUG 24	60	SEP 24	8 060	APR 24	137 000	---	---	---
1963	JAN-DEC	M-C	3 080	APR 15 *	10	DEC 04	22 100	APR 11	263 000	720	720	---
1964	JAN-DEC	M-C	1 510	SEP 03	8	APR 02	15 800	APR 16	293 000	801	761	5.3
1965	JAN-DEC	M-C	1 850	APR 16	80	SEP 26	62 600	APR 16	620 000	1 700	1 070	29.4
1966	JAN-DEC	M-C	2 130	APR 11	13	FEB 15	37 700	APR 11	611 000	1 670	1 220	21.8
1967	JAN-DEC	M-C	1 180	APR 18	16	OCT 23	20 600	APR 23	432 000	1 180	1 210	17.1
1968	JAN-DEC	M-C	886	APR 08	8	NOV 20 *	6 890	APR 08	152 000	614	1 080	20.0
1969	JAN-DEC	M-C	1 980	APR 23	6	APR 02	103 000	APR 23 *	1 180 000	3 250	1 390	25.9
1970	JAN-DEC	M-C	1 510	APR 23	21	MAR 26	26 000	MAY 17	487 000	1 360	1 390	22.4
1971	JAN-DEC	M-C	1 800	APR 23	31	SEP 24	21 600	APR 23	282 000	772	1 320	21.4
1972	JAN-DEC	M-C	636	APR 17	37	NOV 17	6 720	MAY 02	283 000	773	1 260	20.5
1973	JAN-DEC	M-C	333	APR 02	22	SEP 26	1 780	APR 02	59 300	163	1 160	22.0
1974	JAN-DEC	M-C	1 690	APR 22	34	OCT 22	51 300	APR 22	943 000	2 580	1 280	20.4
1975	JAN-DEC	M-C	1 670	APR 24	36	APR 08	18 700	MAY 02	574 000	1 850	1 330	18.3
1976	JAN-DEC	M-C	1 840	APR 08	38	FEB 24	51 600	APR 21	1 220 000 *	3 330	1 470	18.2
1977	JAN-DEC	M-C	227	DEC 12	23	MAR 15	700	APR 11	46 900	134	1 280	19.1
1978	JAN-DEC	M-C	980	APR 17	52	OCT 16	6 390	APR 17	155 000	426	1 320	19.3
1979	JAN-DEC	M-C	777	MAY 04	66	JUN 26	18 000	APR 25	554 000	1 520	1 330	18.0

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

ASSINIBOINE RIVER NEAR ROSSENDALE - STATION NO. 05MJ005

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1970	APR-DEC	M-S	1 740	APR 26 *	49	SEP 27	67 800	APR 27 *	612 000 *	---	---	---
1971	JAN-DEC	M-C	1 470	APR 15	32	OCT 13	25 100	APR 18	707 000	1 940	1 940	---
1972	APR-OCT	M-C	1 290	APR 17	28	SEP 22 *	23 700	APR 18	630 000	---	---	---
1973	JAN-JAN	M-MS	76	JAN 16	76	JAN 16		---	---	---	---	---

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

* - EXTREME FOR PERIOD OF RECORD

ASSINIBOINE RIVER NEAR RUSSELL - STATION NO. 05ME001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : APR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1969	MAY-JUN	M-S	94	MAY 03	5	JUN 02	482	MAY 04	2 550	---	---	---
1970	APR-OCT	M-S	100	APR 27	11	AUG 26	482	APR 27	12 100	56.7	56.7	---
1971	APR-NOV	M-S	183	APR 01	1	SEP 17 *	418	MAY 14	5 490	23.8	40.3	40.6
1972	APR-NOV	M-S	385	APR 18	7	SEP 02	1 110	APR 17	16 600	74.4	51.6	28.7
1973	JAN-DEC	M-S	45	SEP 06	3	APR 06	23.5	SEP 04	1 820	3.86	39.7	40.0
1974	JAN-DEC	M-S	133	APR 20	6	FEB 13	537	APR 20	19 000	82.0	48.2	31.0
1975	JAN-DEC	M-C	109	APR 20	5	DEC 09	516	MAY 11	17 300	67.0	51.3	24.6
1976	APR-DEC	M-S	437	APR 08 *	1	DEC 14	1 220	APR 08 *	25 800 *	120	61.1	23.7

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

BURNTWOOD RIVER ABOVE THREE POINT LAKE - STATION NO. 05TE001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
MAY 02	11:40	3.0	91.9	34	20.0 M												78				DH59
MAY 02	11:45	3.0	91.9	34	28.0 M												75				DH59
MAY 02	11:50	3.0	91.9	35	34.0 M												75				DH59
MAY 02	11:54	3.0	91.9	35	38.0												75				DH59
MAY 02	12:00	3.0	91.9	38	40.0 M												81				DH59
MAY 02	12:04	3.0	91.9	39	50.0 M												81				DH59
MAY 02	13:38		97.4 H	47	---																PUMP
JUN 21	12:00		51.0 H	53	---																PUMP
AUG 22	14:40		29.9 H	28	---																PUMP
AUG 22	14:41	19.0	29.9 H	28	35.0												105				DH59

NOTE : SINGLE VERTICAL IS UNDETERMINED

DISCHARGE SYMBOL(S): H - DAILY MEAN
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

BURNTWOOD RIVER ABOVE THREE POINT LAKE - STATION NO. 05TE001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : JUN-SEP MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1977	MAY-SEP	B-S	81	MAY 27	16	SEP 09	1 040	MAY 28 *	32 700 *	185	185	---
1978	MAY-SEP	B-S	84	AUG 20	16	SEP 26	817	AUG 20	14 400	---	---	---
1979	MAY-SEP #	M-MS	105	MAY 25	16	SEP 25		---	---	---	---	---
1980	MAY-SEP #	A-S	133	JUN 25 *	19	AUG 12	755	SEP 18	12 700	---	---	---
1981	MAY-SEP	B-S	61	MAY 22	21	AUG 04	323	MAY 22	8 820	63.7	124	48.9
1982	MAY-SEP #	B-S	49	MAY 11	11	SEP 11 *	626	JUN 08	15 300	121	123	28.5
1983	MAY-SEP	B-S	79	MAY 17	19	AUG 21	622	MAY 20	27 300	120	122	20.3
1984	MAY-AUG	M-MS	53	JUN 21	28	AUG 22		---	---	---	---	---

A - AUTOMATIC SAMPLING B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

BURNTWOOD RIVER NEAR THE ELBOW - STATION NO. 05TG004

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JUN 01	11:50			43	52.0												53				D74
JUL 19	14:45	17.0		46	52.0												88				D74
SEP 26	10:45	6.0		39	52.0												92				D74

NOTE : SINGLE VERTICAL LOCATED AT 52.0 METRES

MANITOBA

BURNTWOOD RIVER NEAR THE ELBOW - STATION NO. 05TG004

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	SUMMARY : HISTORICAL MEAN LOAD (TONNES)	SUMMARY : STANDARD ERROR OF MEAN %
1978	MAY-AUG #	M-MS	47	JUN 28 *	28	AUG 28	---	---	---	---	---
1979	JUL-AUG #	M-MS	35	JUL 04	33	AUG 20	---	---	---	---	---
1984	JUN-SEP	M-MS	45	JUL 19	28	SEP 26 *	---	---	---	---	---

M - MANUAL SAMPLING

MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

BURNTWOOD RIVER NEAR THOMPSON - STATION NO. 05TG001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	PERCENT SILT	PERCENT CLAY	TYPE OF SAMPLER
MAY 15	12:35	5.0	1090	44	136												79				D74
MAY 15	12:41	5.0	1090	27	109												86				D74
MAY 15	12:46	5.0	1090	28	91.0												78				D74
MAY 15	12:49	5.0	1090	23	82.0												83				D74
MAY 15	12:54	5.0	1090	25	73.0												83				D74
MAY 15	12:59	5.0	1090	21	48.0												85				D74
JUL 24	10:20	19.0	936	24	82.0												72				D74
AUG 24	15:17	19.0	972	21	82.0												75				D74

NOTE : SINGLE VERTICAL IS UNDETERMINED

BURNTWOOD RIVER NEAR THOMPSON - STATION NO. 05TG001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAY-AUG MEAN LOAD (TONNES)	SUMMARY : MAY-AUG HISTORICAL MEAN LOAD (TONNES)	SUMMARY : MAY-AUG STANDARD ERROR OF MEAN %
1970	MAR-SEP	A-S	40	JUL 10	7	MAR 18	1 370	JUL 09 *	84 400	589	589	---
1971	FEB-SEP	A-S	29	JUL 15	7	MAY 26	712	JUL 13	85 100	431	515	16.3
1972	MAY-SEP	A-S	58	SEP 22	5	AUG 23 *	973	JUN 16	54 100	368	468	14.8
1973	MAY-AUG	A-S	33	AUG 08	9	MAY 26	489	MAY 22	31 300	254	413	17.4
1974	MAY-AUG	A-S	59	JUL 28	11	MAY 07	722	MAY 22	42 000	342	399	14.4
1975	MAY-SEP	A-S	75	MAY 26 *	23	JUN 04	930	MAY 28	52 400	385	397	11.9
1976	MAY-SEP	A-S	69	JUN 21	27	MAY 28	1 370	JUL 18	95 800 *	851	433	12.4
1977	MAY-SEP #	M-MS	44	AUG 30	18	MAY 24	---		---	---	---	---
1978	MAY-SEP #	M-MS	26	MAY 29	21	SEP 12	---		---	---	---	---
1979	JUN-JUL #	M-MS	36	JUN 05	28	JUL 17	---		---	---	---	---
1981	JUN-JUL #	M-MS	27	JUL 27	16	JUN 15	---		---	---	---	---
1984	MAY-AUG	M-MS	44	MAY 15	21	MAY 15	---		---	---	---	---

A - AUTOMATIC SAMPLING M - MANUAL SAMPLING

S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

CHURCHILL RIVER ABOVE LEAF RAPIDS - STATION NO. 06EB004

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)	SAMPLED CONCENTRATION MINIMUM (mg/L)	SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY: MEAN LOAD (TONNES)	SUMMARY: HISTORICAL MEAN LOAD (TONNES)	SUMMARY: STANDARD ERROR OF MEAN %
1975	MAY-JUL #	M-MS	10 JUL 15 *	5 MAY 08 *	---	---	---	---	---

M - MANUAL SAMPLING

MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

CHURCHILL RIVER DIVERSION AT SOUTH BAY - STATION NO. 06EC002

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)	SAMPLED CONCENTRATION MINIMUM (mg/L)	SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY: MEAN LOAD (TONNES)	SUMMARY: HISTORICAL MEAN LOAD (TONNES)	SUMMARY: STANDARD ERROR OF MEAN %
1977	JUN-SEP	B-S	39 AUG 30	18 JUN 29	---	---	---	---	---
1978	MAY-AUG	B-S	43 AUG 08 *	8 MAY 17	---	---	---	---	---
1979	JUN-SEP	B-S	15 JUL 13	5 JUN 07	---	---	---	---	---
1980	MAY-OCT #	B-MS	39 AUG 22	9 JUN 09	---	---	---	---	---
1981	JUN-SEP #	B-MS	9 AUG 11	4 JUN 08 *	---	---	---	---	---

B - BOTH AUTOMATIC AND MANUAL SAMPLING

S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

MANITOBA

EDWARDS CREEK DRAIN BELOW JACKFISH CREEK - STATION NO. 05LJ047

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 51 08 30 N LONG 99 55 20 W
DRAINAGE AREA: 311 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 4 494.84 TONNES FOR THE PERIOD MAR 01 TO OCT 31

REMARKS:

MAR				APR			MAY			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0 B	5	0	0.860 B	16	0.77	0.682	71	4.18	1
2	0 B	5	0	1.18 B	17	1.70	0.791	70	4.78	2
3	0 B	5	0	1.00 B	18 S	1.64	0.815	74	5.21	3
4	0 B	5	0	0.858 B	25 S	1.85	1.30	95 S	10.7	4
5	0 B	5	0	0.338 B	32 S	0.94	1.99	119 S	20.5	5
6	0 B	5	0	0.656 B	46 S	2.61	3.14	285	77.3	6
7	0 B	5	0	0.770 B	44	2.93	2.39	272 S	56.2	7
8	0 B	5	0	0.859	33	2.45	1.88	279	45.3	8
9	0 B	5	0	0.634	26	1.42	2.30	354	70.3	9
10	0 B	5	0	0.421	13 S	0.47	3.11	550	148	10
11	0 B	5	0	0.455	11 S	0.43	5.83	1 470 S	740	11
12	0 B	5	0	1.02	147	13.0	6.50	1 300 S	730	12
13	0 B	5	0	2.56	486 S	103	5.77	735	366	13
14	0 B	5	0	1.39	223	35.6	5.47	646	305	14
15	0 B	5	0	0.777	66	4.43	3.95	562	192	15
16	0 B	5	0	0.552	27 S	1.29	2.64	463	105	16
17	0 B	5	0	0.446	16	0.62	1.75	380	57.5	17
18	0 B	5	0	0.384	10 S	0.28	1.17	291	29.4	18
19	0 B	16	0	0.257	22	0.49	1.26	263 S	28.4	19
20	0 B	23	0	0.276	31	0.74	1.65	420	59.9	20
21	0 B	30	0	0.232	37	0.74	1.86	664 S	107	21
22	0 B	37	0	0.210	32	0.56	1.28	395	43.7	22
23	0.105 B	45 S	0.41	0.189	34	0.52	0.995	105	9.04	23
24	0.640 B	32	2.32	0.171	35	0.53	1.88	82 S	13.3	24
25	1.24 B	22	2.36	0.169	45	0.65	3.56	652	202	25
26	1.02 B	17 S	1.50	0.167	51	0.74	2.45	336 S	71.1	26
27	0.755 B	30	1.88	0.071	51	0.31	1.60	187	25.9	27
28	0.505 B	16	0.70	0.018	88	0.14	1.07	113	10.4	28
29	0.384 B	7 S	0.23	0.619	203	10.6	0.935	50	4.04	29
30	0.300 B	11 S	0.29	0.969	116	9.88	0.764	11 S	0.72	30
31	0.276 B	16	0.38				0.576	13	0.85	31
TOTAL	5.426		10.15	18.101		192.84	71.359		3 544.52	TOTAL

JUN				JUL			AUG			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.470	18	0.73	0.157	19	0.26	0.001	13	0	1
2	0.366	26	0.83	0.132	18	0.22	0	10	0	2
3	0.316	22	0.60	0.106	19	0.17	0	9	0	3
4	0.291	21 S	0.53	0.082	16	0.12	0	7	0	4
5	0.249	19	0.41	0.135	20	0.23	0	7	0	5
6	0.267	17	0.39	0.192	21	0.35	0	9	0	6
7	1.89	181 S	29.6	0.106	20	0.18	0	9	0	7
8	1.81	150	23.5	0.097	20	0.17	0	8	0	8
9	1.65	90	12.8	0.094	20	0.16	0	8	0	9
10	1.55	79 S	11.3	0.112	20	0.19	0	7	0	10
11	0.977	18	1.52	0.080	20	0.14	0	8	0	11
12	0.616	32	1.70	0.124	20	0.21	0	6	0	12
13	0.491	14	0.59	0.128	20	0.22	0	7	0	13
14	0.415	8 S	0.28	0.088	20	0.15	0	7	0	14
15	0.312	13	0.35	0.050	19	0.08	0	4	0	15
16	0.302	25	0.65	0.080	19	0.10	0	8	0	16
17	0.805	54	2.52	0.051	18	0.08	0	5	0	17
18	0.524	43	1.95	0.041	19	0.07	0	5	0	18
19	0.336	19 S	0.55	0.032	19	0.05	0	5	0	19
20	0.250	19	0.41	0.023	18	0.04	0	10	0	20
21	0.228	15	0.30	0.020	17	0.03	0	10	0	21
22	0.255	14	0.31	0.019	17	0.03	0	11	0	22
23	5.53	527 S	252	0.017	17	0.02	0	10	0	23
24	4.02	381	136	0.015	16	0.02	0	9	0	24
25	1.51	57 S	7.44	0.014	15	0.02	0	13	0	25
26	0.647	22	1.23	0.011	15	0.01	0	11	0	26
27	0.409	21	0.74	0.009	15	0.01	0	8	0	27
28	0.300	20	0.52	0.002	13	0	0	5	0	28
29	0.234	20	0.40	0.001	11	0	0	5	0	29
30	0.175	20	0.30	0.004	15	0.01	0	5	0	30
31				0.005	15	0.01	0	5	0	31
TOTAL	27.104		450.75	2.005		3.36	0.001		0	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

EDWARDS CREEK DRAIN BELOW JACKFISH CREEK - STATION NO. 05LJ047

SUSPENDED SEDIMENT FOR 1984

	SEP			OCT						
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0	5	0	0.005	22 S	0.02				1
2	0	5	0	0.005	20	0.01				2
3	0	5	0	0.005	10 S	0				3
4	0	10	0	0.004	5	0				4
5	0	11	0	0.005	5	0				5
6	0	11	0	0.002	5	0				6
7	0.002	17	0	0.001	7	0				7
8	0.002	16	0	0.001	7	0				8
9	0.002	16	0	0.001	7	0				9
10	0.002	16	0	0.001	5	0				10
11	0.001	15	0	0.001	14	0				11
12	0.005	16	0.01	0.001	13	0				12
13	0.022	20	0.04	0.001	11	0				13
14	0.018	19	0.03	0.001	7	0				14
15	0.010	17	0.01	0.009	34	0.03				15
16	0.005	16	0.01	2.19	286 S	54.1				16
17	0.001	14	0	0.970	155	13.0				17
18	0	13	0	0.489	57 S	2.41				18
19	0	10	0	0.437	34	1.28				19
20	0	11	0	3.43	341	10[illegible]				20
21	0.005	17	0.01	2.39	275	55.8				21
22	0.025	20	0.04	1.40	149	18.0				22
23	0.019	19	0.03	0.826	29 S	2.07				23
24	0.015	18	0.02	0.591	10	0.51				24
25	0.013	18	0.02	0.566	12	0.59				25
26	0.011	17	0.02	0.567 B	12	0.59				26
27	0.014	21	0.03	0.592 B	9	0.46				27
28	0.012	21	0.02	0.480 B	13	0.54				28
29	0.010	22	0.02	0.454 B	13 S	0.51				29
30	0.009	22	0.02	0.420 B	10	0.36				30
31				0.400 B	12	0.41				31
TOTAL	0.204		0.33	16.250		252.69				TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

EDWARDS CREEK DRAIN BELOW JACKFISH CREEK - STATION NO. 05LJ047

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	PERCENT SILT	PERCENT CLAY	TYPE OF SAMPLER
MAR 23	17:20	0.2	0.105 W	45	WELB X																
MAR 26	14:05		1.02 W	17	WELB X												172				DIP
MAR 29	09:10	0.5	0.384 W	4	WELB X												267				DIP
MAR 30	18:45	0.4	0.300 W	10	WELB X																DIP
APR 03	18:35	3.0	1.00 W	19	WELB X																DIP
APR 04	18:45	3.0	0.858 W	29	WELB X																DIP
APR 05	18:30	4.0	0.339 W	34	WELB X												321				DIP
APR 06	19:05	4.0	0.858 W	51	WELB X																DIP
APR 10	18:40	6.0	0.419	13	WELB X																DIP
APR 11	19:30	2.0	0.528	11	10LB																DIP
APR 13	20:10	3.0	2.11	458	10LB	37	56	81	97	97	98	99	100				395				DHS9
APR 16	17:30	13.0	0.509	19	10LB												376	2	42	56	DHS9
APR 18	17:25	13.0	0.276	8	WELB X																DHS9
MAY 04	17:00	10.0	1.31	103	WELB X																DIP
MAY 05	17:30	7.0	2.02	121	10LB																DIP
MAY 07	13:05	5.0	2.01	273	5.5 M												405				DHS9
MAY 07	13:10	5.0	2.00	249	4.6 M												385				DH48
MAY 07	13:15	5.0	2.00	236	3.7 M												385				DH48
MAY 07	13:20	5.0	2.00	233	2.8 M												390				DH48
MAY 07	13:25	5.0	1.98	342	1.5 M												393				DH48
MAY 07	13:30	5.0	1.98	249	10LB												300				DH48
MAY 11	19:00	9.0	6.79	2140	10LB	10	20	25	51	91	100						385				DHS9
MAY 12	14:00	11.0	5.98	984	10LB	12	23	35	57	100							264	**	**	20	DHS9
MAY 19	16:00	13.0	1.33	267	WELB X												256	**	**	23	DHS9
MAY 21	15:30	12.0	1.65	685	WELB X																DIP
MAY 24	19:30	8.0	2.55	90	10LB																DIP
MAY 25	17:45	11.0	2.12	268	10LB																DHS9
MAY 30	19:10	24.0	0.575	10	10LB												349				DHS9
JUN 04	13:10		0.292	21	WELB X																DHS9
JUN 07	08:30	15.0	1.18	29	10LB																DIP
JUN 07	14:50	18.0	2.82	367	10LB												415				DHS9
JUN 10	17:10	19.0	1.48	27	10LB																DHS9
JUN 14	17:00	19.0	0.387	7	10LB																DHS9
JUN 19	17:00	23.0	0.316	14	10LB												387				DHS9
JUN 23	10:30	16.0	7.11	829	10LB	27	37	51	69	90	95	98	99	100							DHS9
JUN 25	14:20	24.0	1.33	26	1.5 M												336	4	59	37	DHS9
JUN 25	14:25	24.0	1.32	29	2.4 M												422				DH48
JUN 25	14:30	24.0	1.32	25	3.3 M												420				DH48
JUN 25	14:35	24.0	1.32	25	4.2 M												427				DH48
JUN 25	14:40	24.0	1.31	25	5.4 M												389				DH48
OCT 01	19:30	12.0	0.008	22	10LB												410				DH48
OCT 03	18:00	10.0	0.005	8	10LB												503				DHS9
OCT 10	18:30	1.0	2.19	285	10LB																DHS9
OCT 18	18:00	1.0	0.433	12	10LB												353				DHS9
OCT 23	16:00	4.0	0.771	12	10LB																DHS9
OCT 29	13:15		0.454 W	12	WELB X												393				DHS9
																					DIP

NOTE : SINGLE VERTICAL LOCATED AT 10LB

DISCHARGE SYMBOL(S): W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL

EDWARDS CREEK DRAIN BELOW JACKFISH CREEK - STATION NO. 05LJ047

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1980	MAR-OCT	M-S	858	APR 19	7	OCT 05	351	APR 19	1 500	6.55	6.55	---
1981	MAR-OCT	M-S	1 920	JUN 15	3	JUL 25 *	895	JUN 15	5 060	24.6	15.7	56.1
1982	MAR-OCT	M-S	1 730	APR 23	4	SEP 20	2 080	APR 23	9 780	38.6	23.7	40.6
1983	MAR-OCT	M-S	2 530	MAY 18 *	3	APR 11	3 340	APR 25 *	21 200 *	86.7	39.5	43.4
1984	MAR-OCT	M-S	2 140	MAY 11	4	MAR 29	740	MAY 11	4 490	18.3	35.2	38.6

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

EDWARDS CREEK NEAR DAUPHIN - STATION NO. 05LJ022

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL STANDARD ERROR OF MEAN %
1969	APR-OCT #	M-MS	1 530	JUL 01	12	APR 10	---		---	---	---	---
1971	APR-OCT	M-S	3 930	JUN 08	11	MAY 19	5 870	JUN 08	16 400	---	---	---
1972	MAR-OCT	M-S	2 090	APR 21	30	MAR 28	1 330	APR 21	7 390	30.2	30.2	---
1973	MAR-OCT	M-S	1 130	SEP 04	2	APR 01 *	814	SEP 04	2 800	11.4	20.8	45.3
1974	MAR-OCT	M-S	3 190	APR 27	12	SEP 12	6 340	APR 27	44 300	181	74.2	72.3
1975	MAR-NOV	M-S	11 200	SEP 20 *	18	MAY 21	151 000	SEP 19 *	209 000 *	853	269	73.7
1976	MAR-OCT	M-S	9 230	JUN 14	28	OCT 01	26 200	JUN 14	85 400	349	265	54.2
1977	MAR-OCT	M-S	7 710	JUL 12	13	MAR 30	7 250	JUL 12	19 600	80.0	251	62.1
1978	MAR-OCT	M-S	3 420	APR 21	11	SEP 15	1 280	APR 23	9 700	39.6	221	51.6
1979	MAR-OCT	M-S	8 610	MAY 17	5	OCT 31	21 900	MAY 17	77 400	316	233	42.9

M - MANUAL SAMPLING

S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

MINK CREEK NEAR SIFTON - STATION NO. 05LJ048

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL STANDARD ERROR OF MEAN %
1980	MAR-OCT	M-S	203	APR 10 *	5	MAY 17	71.9	APR 10 *	470 *	1.92	1.92	---
1981	MAR-OCT	M-S	13	APR 02	3	APR 15	47.0	JUN 24	134	0.55	1.24	55.3
1982	APR-AUG #	M-S	59	APR 15	2	JUL 20 *	20.6	APR 15	82.5	---	---	---

M - MANUAL SAMPLING

S - SEASONAL OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

MOSSY RIVER BELOW OUTLET OF DAUPHIN LAKE - STATION NO. 05LJ025

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	SUMMARY : JAN-DEC HISTORICAL MEAN LOAD (TONNES)	SUMMARY : JAN-DEC HISTORICAL STANDARD ERROR OF MEAN %
1980	JAN-DEC	M-C	50	JUL 16 *	4	APR 28	50.4	DEC 04 *	2 370 *	6.47	6.47	---
1981	JAN-DEC	M-C	28	MAR 03	6	NOV 04	17.3	FEB 21	1 220	3.33	4.90	32.0
1982	JAN-DEC	M-C	20	JUN 09	3	SEP 21 *	24.7	APR 29	1 390	3.81	4.54	31.5

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

NELSON RIVER ABOVE BLADDER RAPIDS - STATION NO. 05UD004

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
SEP 26	11:34		1880	32	85.3												206				P61
SEP 26	13:11		1880	33	85.3												208				P61
SEP 26	13:13		1880	30	85.3												209				P61
SEP 26	13:15		1880	31	85.3												210				P61
SEP 26	13:18		1880	32	85.3												204				P61
SEP 26	13:22		1880	31	85.3												202				P61
SEP 26	13:26		1880	33	85.3												210				P61
SEP 26	13:32		1880	33	85.3												211				P61
SEP 26	13:36		1880	37	85.3												215				P61
SEP 26	13:41		1880	33	85.3												213				P61
SEP 26	13:46		1880	36	85.3												208				P61
SEP 26	13:51		1880	36	85.3												203				P61

NOTE : SINGLE VERTICAL LOCATED AT 85.3 METRES

NELSON RIVER ABOVE BLADDER RAPIDS - STATION NO. 05UD004

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)	MINIMUM (mg/L)	SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1978	MAY-AUG #	M-MS	24 JUL 18	14 AUG 23 *	---	---	---	---	---
1984	SEP-SEP	M-MS	37 SEP 26 *	30 SEP 26	---	---	---	---	---

M - MANUAL SAMPLING

MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

OCHRE RIVER AT OCHRE RIVER - STATION NO. 05LJ005

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)	MINIMUM (mg/L)	SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1980	MAR-OCT	M-S	826 APR 17	18 SEP 17	904 APR 19	3 880	15.1	15.1	---
1981	MAR-OCT	M-S	556 JUN 18	5 JUL 27 *	480 JUN 18	4 180	17.1	16.1	5.2
1982	MAR-OCT	M-S	953 APR 23 *	8 MAY 30	1 240 APR 23 *	5 750 *	35.7	22.8	29.0

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

ODEI RIVER NEAR THOMPSON - STATION NO. 05TG003

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND SILT CLAY	TYPE OF SAMPLER
MAY 01	13:54	1.5	19.3	55	14.0 M												109		DH59
MAY 01	14:10	1.5	17.5	58	25.0 M												113		DH59
MAY 01	14:20	1.5	104	56	32.0												112		DH59
MAY 01	14:31	1.5	21.4	55	38.0 M												108		DH59
MAY 01	14:37	1.5	23.8	50	49.0 M												107		DH59
MAY 01	14:46	1.5	22.4	51	62.0 M												104		DH59
MAY 16	12:19	1.8	75.5	41	32.0												113		DH59
MAY 16	12:35		75.5	37	---														PUMP
MAY 17	11:20		72.6	37	---														PUMP
MAY 18	11:15		71.7	37	---														PUMP
MAY 20	11:40		71.8	39	---														PUMP
MAY 22	11:35		78.3	46	---														PUMP
MAY 24	12:00		89.6	51	---														PUMP
MAY 25	11:50		93.4	55	---														PUMP
MAY 27	11:55		91.2	56	---														PUMP
MAY 29	12:05		82.5	47	---														PUMP
MAY 31	12:00		73.7	47	---														PUMP
JUN 01	12:00		70.3	46	---														PUMP
JUN 03	12:10		64.8	53	---														PUMP
JUN 05	12:10		63.5	50	---														PUMP
JUN 07	12:05		62.9	50	---														PUMP
JUN 08	12:35		63.5	56	---														PUMP
JUN 10	12:35		66.0	68	---														PUMP
JUN 12	12:30		62.7	55	---														PUMP
JUN 14	12:40		58.4	51	---														PUMP
JUL 19	10:40		21.5 V	52	---														PUMP
AUG 29	13:05		12.6	21	---														PUMP
AUG 30	12:00		12.3	26	---														PUMP
AUG 31	12:00		11.6	28	---														PUMP
SEP 02	12:00		13.9	30	---														PUMP
SEP 04	12:00		11.4	27	---														PUMP
SEP 06	12:00		8.63	26	---														PUMP
SEP 07	12:00		8.30	33	---														PUMP
SEP 09	12:00		10.3	26	---														PUMP
SEP 11	12:00		18.1	29	---														PUMP
SEP 13	12:00		22.6	31	---														PUMP
SEP 14	12:00		23.5	32	---														PUMP
SEP 16	12:00		24.9	33	---														PUMP
SEP 18	12:00		24.6	33	---														PUMP
SEP 20	12:00		24.5	28	---														PUMP
SEP 21	12:00		23.5	25	---														PUMP
SEP 23	12:00		23.1	30	---														PUMP
SEP 25	12:10		19.3	32	---														PUMP
SEP 25	12:20		2.63	44	65.0 M												160		DH59
SEP 25	12:30		3.90	29	53.0 M												154		DH59
SEP 25	12:40		4.91	29	38.0 M												158		DH59
SEP 25	12:50		17.2	27	32.0												157		DH59
SEP 25	13:00		4.03	27	24.0 M												154		DH59
SEP 25	13:05		1.70	41	12.0 M												161		DH59

NOTE : SINGLE VERTICAL IS UNDETERMINED

DISCHARGE SYMBOL(S): V - DAILY MEAN, MANUAL GAUGE
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

ODEI RIVER NEAR THOMPSON - STATION NO. 05TG003

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : MAY-SEP MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1979	MAY-SEP #	B-S	114	MAY 28	23	SEP 14	1 100	MAY 28	7 550	---	---	---
1980	MAY-SEP	B-S	189	AUG 26 *	32	JUL 18	1 870	AUG 26	44 800	293	293	---
1981	MAY-SEP	B-S	86	MAY 20	10	AUG 27 *	2 570	MAY 16	30 200	197	245	19.6
1982	MAY-SEP	B-S	101	MAY 10	35	JUL 16	4 230	MAY 03 *	76 400 *	512	334	27.8
1983	MAY-SEP	B-S	106	JUL 19	34	SEP 02	1 740	MAY 30	56 800	---	---	---
1984	MAY-SEP	M-MS	68	JUN 10	21	AUG 29	544	MAY 05	---	175	294	26.2

B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

MANITOBA

PACKHORSE CREEK NEAR MCCREARY - STATION NO. 05LJ034

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : APR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1962	MAY-JUN	M-S	7 630	MAY 30	740	MAY 31	1 620	MAY 30	1 510	---	---	---
1963	MAY-JUN	M-S	5 680	JUN 10	585	JUN 04	582	JUN 10	1 070	---	---	---
1964	APR-OCT	M-S	570	MAY 04	4	MAY 25	31.4	MAY 04	60.2	---	---	---
1965	APR-OCT	M-S	3 040	MAY 06	12	APR 15	373	MAY 06	1 350	6.29	6.28	---
1966	APR-OCT	M-S	2 400	MAY 04	19	JUN 03	131	MAY 04	453	2.20	4.25	48.1
1967	APR-OCT	M-S	1 070	MAY 07	20	JUN 05	86.6	MAY 07	420	1.97	3.49	40.2
1968	APR-OCT	M-S	1 430	MAY 08	26	JUL 13	107	MAY 08	256	1.40	2.97	37.7
1969	APR-OCT	M-S	10 700	JUN 27 *	23	AUG 27	2 560	JUN 27	4 730 *	22.1	6.79	57.6
1970	APR-OCT	M-S	3 620	JUN 11	3	JUL 18	533	MAY 07	2 320	10.8	7.46	43.9
1971	APR-OCT	M-S	9 860	JUN 06	1	AUG 10	2 960	JUN 06 *	4 530	---	---	---
1972	MAY-SEP	M-S	1 170	MAY 12	1	JUL 09	26.6	MAY 12	156	---	---	---
1973	APR-OCT	M-S	2 780	JUN 20	2	AUG 16	196	JUN 20	516	2.42	6.74	42.4
1974	APR-OCT	M-S	3 420	APR 26	1	OCT 17	446	APR 26	1 570	7.33	6.61	36.4
1975	MAY-SEP	M-S	2 120	JUN 10	0	JUN 17 *	196	SEP 19	964	---	---	---

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05OB007

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 01 53 N LONG 98 16 40 W
DRAINAGE AREA: 7 500 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

INTERNATIONAL GAUGING STATION

TOTAL SUSPENDED SEDIMENT LOAD 1 759.65 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

	JAN			FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.002 B	1	0	0 B	0	0	0.008 B	8	0.01	1
2	0 B	0	0	0 B	0	0	0.005 B	5	0	2
3	0 B	0	0	0 B	0	0	0.007 B	4	0	3
4	0 B	0	0	0 B	0	0	0.008 B	2	0	4
5	0 B	0	0	0 B	0	0	0.004 B	1	0	5
6	0.003 B	0	0	0 B	0	0	0.001 B	0	0	6
7	0.007 B	0	0	0 B	0	0	0 B	0	0	7
8	0.003 B	0	0	0 B	0	0	0 B	0	0	8
9	0.001 B	0	0	0 B	0	0	0 B	0	0	9
10	0 B	0	0	0 B	0	0	0 B	0	0	10
11	0 B	0	0	0 B	0	0	0 B	0	0	11
12	0 B	0	0	0 B	0	0	0 B	0	0	12
13	0 B	0	0	0 B	0	0	0 B	0	0	13
14	0 B	0	0	0 B	0	0	0 B	0	0	14
15	0 B	0	0	0 B	0	0	0 B	0	0	15
16	0 B	0	0	0 B	0	0	0 B	0	0	16
17	0 B	0	0	0 B	0	0	0 B	0	0	17
18	0 B	0	0	0 B	0	0	0 B	0	0	18
19	0 B	0	0	0 B	0	0	0.005 B	2	0	19
20	0 B	0	0	0 B	0	0	0.020 B	20	0.03	20
21	0 B	0	0	0.005 B	30	0.01	0.100 B	50	0.43	21
22	0 B	0	0	0.015 B	70 S	0.09	0.300 B	100	2.59	22
23	0 B	0	0	0.030 B	80	0.18	0.536 B	114 S	5.28	23
24	0 B	0	0	0.020 B	50	0.09	0.334 B	117	3.38	24
25	0 B	0	0	0.015 B	40	0.05	0.287 B	122 S	3.03	25
26	0 B	0	0	0.018 B	30	0.05	0.160 B	107	1.48	26
27	0 B	0	0	0.021 B	20	0.04	0.258 B	81 S	1.81	27
28	0 B	0	0	0.017 B	15	0.02	0.537 B	72 S	3.34	28
29	0 B	0	0	0.013 B	10	0.01	0.921 B	57 S	7.72	29
30	0 B	0	0				1.18 B	115 S	11.8	30
31	0 B	0	0				1.77 B	129 S	19.7	31
TOTAL	0.016		0	0.154		0.52	8.452		80.80	TOTAL

	APR			MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	2.10 B	109 S	19.8	1.85	22 S	3.73	1.83	29	4.84	1
2	2.58 B	100 S	22.1	1.70	14 S	2.08	1.84	29	4.86	2
3	3.02 B	128 S	33.4	1.54	11 S	1.48	1.98	28 S	4.79	3
4	3.37 B	128 S	37.3	1.55	11	1.47	2.07	29	5.18	4
5	3.59 B	106 S	32.9	1.73	14	2.09	2.25	30	5.83	5
6	3.11	88	23.1	1.81	21 S	3.47	2.45	30	6.35	6
7	2.79	57 S	13.7	2.27	31 S	6.08	2.72	30	7.05	7
8	2.25	42 S	8.16	2.53	35	7.85	2.86	31	7.85	8
9	1.89	33	5.87	2.83	40	9.78	2.98	32	8.24	9
10	1.76	25 S	3.80	2.79	38	9.15	2.92	32 S	8.07	10
11	1.85	21 S	2.89	2.56	38	7.88	3.83	54	16.3	11
12	1.78	22	3.35	2.60	34	7.64	4.81	78	30.4	12
13	1.84	26 S	3.87	2.55	31 S	6.83	3.79	72	23.8	13
14	1.82	27 S	4.25	2.55	30	6.61	3.19	63	17.4	14
15	1.81	28 S	4.38	2.35	30	6.09	3.30	107	30.5	15
16	1.83	29	4.59	2.18	28	5.27	6.81	983 S	739	16
17	1.76	30 S	4.56	2.05	27	4.81	5.07	325 S	142	17
18	1.70	27	3.97	1.88	27	4.41	3.70	137	43.8	18
19	1.63	21 S	2.86	1.81	26	4.07	2.68	110 S	25.5	19
20	1.51	18	2.35	1.91	26 S	4.29	2.41	89	20.6	20
21	1.43	18	2.22	2.46	34	7.23	2.34	80	18.2	21
22	1.38	19 S	2.28	2.50	36	8.09	2.15	63 S	15.4	22
23	1.33	18	2.07	2.46	34	7.23	1.84	68	11.6	23
24	1.27	17 S	1.87	2.43	33	6.93	1.69	53 S	8.52	24
25	1.23	16	1.69	2.39	32	6.61	1.56	44	6.31	25
26	1.20	15	1.55	2.38	31	6.32	1.75	61 S	9.22	26
27	1.36	30	3.53	2.28	30 S	5.91	1.57	41	5.55	27
28	1.57 B	51	6.92	2.19	28	5.30	1.43	33 S	4.08	28
29	1.55 B	49	6.25	2.08	27 S	4.85	1.32	25	2.85	29
30	2.29	34 S	6.73	2.04	29	5.11	1.20	18	1.87	30
31				1.98	28	4.88				31
TOTAL	58.87		274.33	68.55		173.60	62.01		1 237.59	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05OB007

SUSPENDED SEDIMENT FOR 1984

JUL				AUG			SEP			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	1.07	14 S	1.28	0.052	9	0.04	0	0	0	1
2	1.08	12	1.13	0.081	10	0.05	0	0	0	2
3	1.02	11	0.97	0.050	8	0.03	0.001	0	0	3
4	0.926	11	0.88	0.053	8	0.04	0.001	0	0	4
5	0.814	10 S	0.70	0.052	8 S	0.04	0.001	0	0	5
6	0.723	11	0.68	0.050	8	0.03	0.002	0	0	6
7	0.631	11	0.60	0.045	8	0.03	0.003	1	0	7
8	0.628	11 S	0.60	0.051	9 S	0.04	0.003	2	0	8
9	0.602	11	0.57	0.047	9	0.04	0.003	3	0	9
10	0.557	11	0.53	0.041	9	0.03	0.003	4	0	10
11	0.502	11	0.46	0.037	8	0.03	0.004	4	0	11
12	0.438	11 S	0.42	0.033	8 S	0.02	0.012	8	0.01	12
13	0.480	14	0.58	0.031	8	0.02	0.010	9	0.01	13
14	0.431	16	0.60	0.027	9 S	0.02	0.007	5	0	14
15	0.314	10 S	0.27	0.024	9	0.02	0.001	2	0	15
16	0.255	10	0.23	0.019	9	0.01	0	0	0	16
17	0.225	11	0.21	0.019	10	0.02	0	0	0	17
18	0.197	12 S	0.20	0.017	10	0.01	0	0	0	18
19	0.163	12	0.17	0.014	10	0.01	0	0	0	19
20	0.124	12	0.13	0.015	10 S	0.01	0	0	0	20
21	0.123	12	0.13	0.014	10	0.01	0	0	0	21
22	0.135	12 S	0.14	0.013	9	0.01	0	0	0	22
23	0.084	11	0.06	0.008	7	0.01	0	0	0	23
24	0.087	10	0.06	0.008	8	0	0	0	0	24
25	0.071	10 S	0.05	0.007	5	0	0	0	0	25
26	0.088	10	0.08	0.006	3 S	0	0	0	0	26
27	0.082	10	0.05	0.004	2	0	0	0	0	27
28	0.060	8	0.05	0.001	1 S	0	0	0	0	28
29	0.053	8 S	0.04	0.001	0	0	0	0	0	29
30	0.054	8	0.04	0	0	0	0	0	0	30
31	0.058	10	0.05	0	0	0				31
TOTAL	12.057		12.03	0.801		0.57	0.051		0.02	TOTAL

OCT				NOV			DEC			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0	0	0	0.026 B	4	0.01	0.011 B	0	0	1
2	0	0	0	0.025 B	4	0.01	0.010 B	0	0	2
3	0	0	0	0.033 B	4	0.01	0.009 B	0	0	3
4	0	0	0	0.055 B	4	0.02	0.009 B	0	0	4
5	0	0	0	0.049 B	4	0.02	0.008 B	0	0	5
6	0	0	0	0.036 B	4	0.01	0.010 B	0	0	6
7	0.001	1	0	0.026 B	3 S	0.01	0.012 B	0	0	7
8	0.002	1	0	0.019 B	3	0	0.014 B	0	0	8
9	0.004	2	0	0.016 B	3	0	0.014 B	0	0	9
10	0.003	3	0	0.015 B	2	0	0.011 B	0	0	10
11	0.002	3	0	0.021 B	2	0	0.008 B	0	0	11
12	0.003	4	0	0.024 B	2	0	0.004 B	0	0	12
13	0.004	5	0	0.024 B	1	0	0.005 B	0	0	13
14	0.004	5	0	0.025 B	1	0	0.009 B	0	0	14
15	0.015	8	0.01	0.019 B	0	0	0.010 B	0	0	15
16	0.033	11	0.03	0.017 B	0	0	0.007 B	0	0	16
17	0.017	9	0.01	0.019 B	0	0	0.002 B	0	0	17
18	0.012	8	0.01	0.021 B	0	0	0.001 B	0	0	18
19	0.039	10	0.03	0.022 B	0	0	0.003 B	0	0	19
20	0.046	9	0.04	0.022 B	0	0	0.004 B	0	0	20
21	0.046	10	0.04	0.022 B	0	0	0.002 B	0	0	21
22	0.051	11	0.05	0.018 B	0	0	0.001 B	0	0	22
23	0.045	9	0.03	0.015 B	0	0	0.001 B	0	0	23
24	0.042	7	0.03	0.012 B	0	0	0 B	0	0	24
25	0.038	7	0.02	0.010 B	0	0	0 B	0	0	25
26	0.035	6	0.02	0.009 B	0	0	0 B	0	0	26
27	0.044 B	6	0.02	0.011 B	0	0	0 B	0	0	27
28	0.036 B	6	0.02	0.013 B	0	0	0 B	0	0	28
29	0.046 B	6	0.02	0.013 B	0	0	0 B	0	0	29
30	0.026 B	5	0.01	0.012 B	0	0	0 B	0	0	30
31	0.027 B	5	0.01				0 B	0	0	31
TOTAL	0.625		0.40	0.653		0.09	0.154		0	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05DB007

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
FEB 22	12:00	0.5	0.015 W	70	MID												418				DH48
MAR 23	14:00	0.5	0.538 W	114	MID												388				DH48
MAR 25	10:20	0.0	0.287 W	123	MID																DH48
MAR 27	12:00	0.5	0.258 W	78	MID																DH48
MAR 28	18:30	0.0	0.537 W	72	MID																DH48
MAR 29	18:55	0.0	0.921 W	110	MID																DH48
MAR 30	18:27	0.5	1.19 W	138	MID												255				DH59
MAR 31	19:05	0.5	1.77 W	138	MID																DH59
APR 01	14:20	2.0	2.10 W	95	MID																DH59
APR 02	18:00	2.5	2.56 W	101	MID																DH59
APR 03	13:00	2.0	3.02 W	147	MID																DH59
APR 04	15:45	3.0	3.37 W	135	MID												329				DH48
APR 05	18:50	5.0	3.59 W	87	MID																DH59
APR 07	09:15	5.0	2.95	57	MID																DH59
APR 08	09:30	5.0	2.24	42	MID																DH59
APR 10	08:15	5.5	1.82	26	MID																DH59
APR 11	18:40	6.5	1.61	20	MID												416				DH59
APR 13	11:15	7.0	1.83	25	MID																DH59
APR 14	09:25	6.0	1.83	26	MID																DH59
APR 15	09:00	5.0	1.76	27	MID																DH59
APR 17	12:00	11.0	1.75	30	MID																DH59
APR 19	18:00	16.0	1.63	19	MID												370				DH48
APR 22	08:00	11.0	1.40	19	MID												556				DH48
APR 24	08:45	10.0	1.28	16	MID												587				DH48
APR 30	16:45	7.0	2.20	31	MID																DH48
MAY 01	17:40	8.0	1.92	18	MID												543				DH48
MAY 02	18:00	11.0	1.65	12	MID																DH48
MAY 03	16:35	15.0	1.53	9	MID																DH48
MAY 06	09:30	12.0	1.88	19	MID																DH48
MAY 07	12:00	10.0	2.34	34	MID																DH48
MAY 13	09:45	10.0	2.50	31	MID												606				DH48
MAY 20	18:15	13.0	2.04	25	MID												595				DH48
MAY 27	18:40	19.0	2.25	30	MID												573				DH48
MAY 28	12:20	17.0	2.05	27	MID												590				DH48
JUN 03	08:30	14.0	1.95	22	MID												605				DH48
JUN 10	09:15	12.0	2.92	32	MID												606				DH48
JUN 16	16:45	25.0	7.56	901	MID	27	46	70	81	92	94	96	98	100							DH48
JUN 17	21:15	24.0	4.88	172	MID												530	6	48	46	DH59
JUN 19	08:45	19.0	2.78	114	MID																DH59
JUN 22	20:10	24.0	2.04	81	MID																DH59
JUN 24	13:30	23.0	1.83	49	MID												605				DH59
JUN 26	10:30	19.0	1.71	64	MID																DH59
JUN 28	18:45	21.0	1.87	51	MID																DH59
JUN 29	08:15	19.0	1.45	34	MID																DH48
JUL 01	19:00	28.0	1.05	12	MID																DH48
JUL 05	09:25	15.0	0.830	10	MID												829				DH48
JUL 08	08:20	16.0	0.641	11	MID																DH48
JUL 12	18:15	26.0	0.394	11	MID												826				DH48
JUL 15	10:40	18.0	0.330	10	MID																DH48
JUL 18	10:00	19.0	0.211	12	MID												842				DH48
JUL 22	09:05	22.0	0.151	12	MID																DH48
JUL 25	08:55	19.0	0.070	10	MID												859				DH48
JUL 29	09:30	24.0	0.053	9	MID																DH48
AUG 05	13:00	26.0	0.052	8	MID												872				DH48
AUG 08	19:00	24.0	0.054	9	MID												863				DH48
AUG 12	11:00	24.0	0.034	8	MID																DH48
AUG 14	13:30	24.0	0.027	27	MID																DH48
AUG 20	19:00	22.0	0.017	10	MID																DH48
AUG 26	18:40	27.0	0.005	19	MID												873				DH48
AUG 28	13:00	24.0	0.001	15	MID												895				DH48
NOV 07	11:00	0.5	0.025 W	3	MID																DIP
																	744				DIP

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): W - DAILY MEAN, ICE CONDITIONS

MANITOBA

PEMBINA RIVER NEAR WINDYGATES - STATION NO. 05OD007

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1962	APR-DEC	M-S	1 480	APR 30	6	JUN 29	5 590	APR 21	30 400	---	---	---
1963	JAN-DEC	M-C	520	JUN 07	0	JAN 29 *	285	JUN 05	5 480	23.2	23.2	---
1964	JAN-DEC	M-C	595	APR 21	12	JUL 12	375	APR 21	12 400	34.0	26.5	18.9
1965	JAN-DEC	M-C	1 580	MAY 05	5	AUG 12	5 300	APR 14	57 500	158	71.7	80.3
1966	JAN-DEC	M-C	1 730	APR 01	11	NOV 21	6 470	APR 01	86 400	237	113	45.5
1967	JAN-DEC	M-C	5 800	APR 20 *	0	OCT 02	13 800	APR 20	85 500	235	137	34.1
1968	JAN-DEC	M-C	1 070	MAR 26	20	JUL 10	1 550	MAR 28	23 200	63.5	125	32.1
1969	JAN-DEC	M-C	1 230	APR 12	6	JAN 09	6 770	APR 15	144 000	395	184	31.3
1970	JAN-DEC	M-C	2 630	APR 25	30	OCT 03	16 600	APR 26	176 000	488	204	29.5
1971	JAN-DEC	M-C	1 430	APR 11	20	OCT 19	17 500	APR 11	150 000	427	230	25.7
1972	JAN-DEC	M-C	1 570	APR 11	17	OCT 15	5 040	APR 11	103 000	282	235	22.6
1973	JAN-DEC	M-C	365	JUL 25	24	SEP 15	73.4	AUG 05	2 590	7.11	215	34.3
1974	JAN-DEC	M-C	3 670	APR 15	25	AUG 15	26 300	MAY 21 *	383 000 *	1 050	287	30.1
1975	JAN-DEC	M-C	1 180	MAY 01	10	FEB 25	3 480	MAY 12	50 500	248	284	26.0
1976	JAN-DEC	M-C	2 320	APR 05	20	AUG 03	12 400	APR 05	269 000	750	320	25.7
1977	JAN-DEC	M-C	1 310	MAY 15	13	APR 17	274	MAY 22	1 480	4.00	289	26.5
1978	JAN-DEC	M-C	2 110	APR 05	5	MAR 28	4 240	APR 05	41 500	114	287	26.1
1979	JAN-DEC	M-C	2 060	APR 21	15	AUG 12	20 200	APR 22	352 000	965	327	24.8
1980	JAN-DEC	M-C	1 290	MAY 29	13	JAN 15	355	MAY 29	3 330	9.11	305	25.4
1981	JAN-DEC	M-C	2 160	MAY 23	5	NOV 15	1 530	MAY 23	4 370	12.0	294	25.5
1982	JAN-DEC	M-C	4 650	JUN 07	5	SEP 15	12 600	JUN 07	53 100	146	265	25.3
1983	JAN-DEC	M-C	1 610	APR 08	4	AUG 07	3 890	APR 08	45 400	127	278	24.6
1984	FEB-NOV	M-C	901	JUN 15	3	NOV 07	739	JUN 15	1 780	4.81	265	25.2

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

PORTAGE DIVERSION NEAR OAKLAND - STATION NO. 05LL018

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : APR-MAY MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1970	APR-MAY	M-S	1 880	APR 28	159	MAY 09	35 300	APR 28	233 000	3 820	3 820	---
1971	APR-APR	M-S	502	APR 20	236	APR 22	3 060	APR 20	12 300	---	---	---
1972	MAR-MAY	M-S	1 260	APR 15	58	MAR 26	25 500	APR 15	167 000	2 350	3 050	23.8
1973	APR-APR	M-S	672	APR 17	5	NOV 22 *	0	APR 01	---	---	---	---
1974	APR-JUL	M-S	2 110	APR 20	61	JUN 12	82 000	APR 22	622 000	5 450	4 550	37.7
1975	APR-JUL	M-S	1 500	APR 24	54	JUN 20	21 100	APR 24	258 000	3 570	4 530	28.5
1976	APR-JUN	M-S	3 420	APR 09 *	51	JUN 02	106 000	APR 09 *	1 500 000 *	24 500	5 620	47.9

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

PORTAGE DIVERSION NEAR PORTAGE LA PRAIRIE - STATION NO. 05LL019

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : APR-MAY MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1970	APR-MAY	M-S	705	APR 28	114	APR 24	12 000	APR 28	84 200	1 540	1 540	---
1971	APR-APR	M-S	483	APR 14	122	APR 18	1 530	APR 18	5 050	---	---	---
1972	MAR-MAY	M-S	337	APR 17	36	MAR 30	5 750	APR 18	61 300	850	1 270	21.7
1973	APR-APR	M-S	672	APR 17	5	NOV 22 *	0	APR 01	---	---	---	---
1974	APR-JUL	M-S	1 210	APR 22	50	JUN 13	50 500	APR 22	295 000	4 750	2 430	48.4
1975	APR-JUL	M-S	1 140	APR 22	59	JUN 20	20 700	MAY 01	267 000	3 750	2 770	32.4
1976	APR-JUN	M-S	1 500	APR 05 *	55	MAY 25	55 500	APR 22 *	815 000 *	15 000	5 220	48.7
1977	MAR-OCT	M-S	332	APR 12	10	MAY 15	0	MAR 01	---	0	4 350	51.7
1978	MAR-OCT	M-S	520	APR 30	55	JUN 05	15 500	APR 25	220 000	3 430	4 220	45.2

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

RAT RIVER BELOW NOTIGI CONTROL STRUCTURE - STATION NO. 05TF003

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	SUMMARY : HISTORICAL MEAN LOAD (TONNES)	SUMMARY : STANDARD ERROR OF MEAN %
1978	MAY-AUG #	M-MS	18	MAY 19 *	5	JUL 04 *	---	---	---	---	---
1979	JUL-JUL	M-MS	11	JUL 18	11	JUL 18	---	---	---	---	---
1981	JUN-JUN #	M-MS	10	JUN 02	9	JUN 12	---	---	---	---	---

M - MANUAL SAMPLING

MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

RED RIVER AT ELM PARK BRIDGE - STATION NO. 05DC003

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	SUMMARY : HISTORICAL MEAN LOAD (TONNES)	SUMMARY : STANDARD ERROR OF MEAN %
1956	APR-JUN	M-S	1 910	APR 21 *	85	MAY 25	---	---	---	---	---
1957	APR-JUN	M-S	1 070	APR 25	34	MAY 26 *	---	---	---	---	---
1958	APR-APR	M-S	290	APR 09	46	APR 11	---	---	---	---	---
1961	APR-APR	M-S	245	APR 21	150	APR 27	---	---	---	---	---

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

RED RIVER AT EMERSON - STATION NO. 09DC001

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 00 30 N LONG 97 12 40 W
DRAINAGE AREA: 104 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

INTERNATIONAL GAUGING STATION

TOTAL SUSPENDED SEDIMENT LOAD 732 135.8 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

DAY	JAN DAILY DISCHARGE (m³/s)	JAN MEAN CONCENTRATION (mg/L)	JAN DAILY LOAD (t)	FEB DAILY DISCHARGE (m³/s)	FEB MEAN CONCENTRATION (mg/L)	FEB DAILY LOAD (t)	MAR DAILY DISCHARGE (m³/s)	MAR MEAN CONCENTRATION (mg/L)	MAR DAILY LOAD (t)	DAY
1	41.6 B	10	35.9	35.8 B	10	30.9	55.7 B	12	57.7	1
2	41.6 B	10	35.9	35.6 B	10	30.8	59.6 B	12	61.8	2
3	41.5 B	10	35.9	35.6 B	10	30.8	62.1 B	12	64.4	3
4	41.4 B	10	35.8	35.6 B	10	30.8	63.5 B	12	65.8	4
5	41.4 B	10 S	35.8	35.6 B	10	30.8	65.2 B	12	67.6	5
6	41.3 B	10	35.7	35.5 B	10	30.7	66.8 B	12	69.3	6
7	41.3 B	10	35.7	35.3 B	10 S	30.5	68.7 B	12 S	71.2	7
8	41.2 B	10	35.6	35.3 B	10	30.5	70.6 B	12	73.2	8
9	41.2 B	10	35.6	35.2 B	10	30.4	72.3 B	12	75.0	9
10	41.1 B	10	35.5	34.6 B	10	30.1	73.6 B	13	82.7	10
11	40.8 B	10	35.3	34.3 B	10	29.6	73.8 B	13	82.9	11
12	40.5 B	10	35.0	33.8 B	10	29.2	72.6 B	13	81.5	12
13	40.2 B	10	34.7	33.5 B	10	28.9	70.6 B	13	79.3	13
14	39.7 B	10	34.3	33.4 B	10	28.9	68.1 B	14	82.4	14
15	39.3 B	10	34.0	33.0 B	11	31.4	65.6 B	14	79.3	15
16	39.1 B	10	33.8	32.7 B	11	31.1	62.3 B	14	75.4	16
17	38.9 B	10	33.6	32.5 B	11	30.9	58.8 B	14	70.9	17
18	38.8 B	10	33.5	32.6 B	11	31.0	55.1 B	14	66.6	18
19	38.5 B	10	33.3	33.1 B	11	31.5	52.6 B	14	63.6	19
20	38.1 B	10	32.9	33.6 B	11	31.9	50.9 B	13	57.2	20
21	37.8 B	10	32.7	34.2 B	11	32.5	49.8 B	12	51.4	21
22	37.5 B	10	32.4	34.9 B	11	33.2	48.6 B	13	54.6	22
23	37.3 B	10	32.2	35.8 B	11	34.1	48.1 B	13	54.0	23
24	37.1 B	10	32.1	37.2 B	11	35.4	48.4 B	12	50.2	24
25	36.8 B	10	31.8	38.5 B	11	36.6	49.9 B	13	56.0	25
26	36.8 B	10	31.8	40.0 B	11	38.0	55.6 B	16	76.7	26
27	36.6 B	10	31.6	42.0 B	12	43.5	72.2 B	41	256	27
28	36.3 B	10	31.4	45.7 B	12	47.4	116 B	67	687	28
29	36.0 B	10	31.1	50.8 B	12	52.7	182 B	155	2 570	29
30	36.0 B	10	31.1				259 B	228	5 120	30
31	35.9 B	10	31.0				313 B	302	8 170	31
TOTAL	1 211.6		1 047.0	1 066.0		964.1	2 542.8		16 773.7	TOTAL

DAY	APR DAILY DISCHARGE (m³/s)	APR MEAN CONCENTRATION (mg/L)	APR DAILY LOAD (t)	MAY DAILY DISCHARGE (m³/s)	MAY MEAN CONCENTRATION (mg/L)	MAY DAILY LOAD (t)	JUN DAILY DISCHARGE (m³/s)	JUN MEAN CONCENTRATION (mg/L)	JUN DAILY LOAD (t)	DAY
1	381 B	371	12 200	159	204 S	2 800	74.4	117	752	1
2	449 B	432 S	16 600	158	185	2 530	72.0	122	759	2
3	548 B	476	22 600	158	184 S	2 240	68.8	121 S	730	3
4	658 B	505	28 600	157	148 S	2 010	68.3	115 S	678	4
5	784 B	473	31 200	153	153 S	2 020	67.2	103 S	598	5
6	825	386	27 600	149	176	2 270	67.3	147 S	855	6
7	833	324 S	23 300	145	184 S	2 430	70.4	288	1 810	7
8	855	304	27 600	141	187	2 400	73.8	516 S	3 290	8
9	882	290 S	21 300	138	184 S	2 190	88.3	539	4 110	9
10	849	265	19 400	135	187 S	1 880	150	808 S	7 890	10
11	844	227	15 800	133	189 S	2 170	304	853 S	22 400	11
12	841	170 S	12 400	132	177	2 020	408	845 S	29 800	12
13	836	115 S	8 310	130	147 S	1 850	495	764 S	32 700	13
14	830	111 S	7 880	129	147 S	1 840	585	584	27 800	14
15	785	104 S	6 870	128	184 S	1 780	607	334 S	17 500	15
16	689	105 S	6 480	123	186	1 780	644	188 S	10 500	16
17	632	110 S	6 010	119	187	1 720	668	177 S	10 200	17
18	588	109 S	5 350	116	182	1 620	678	148 S	8 470	18
19	506	108 S	4 770	113	188	1 620	688	115 S	6 850	19
20	442	114	4 350	110	141 S	1 340	640	80 S	4 420	20
21	378	180 S	4 570	107	129	1 190	586	86 S	3 500	21
22	321	143 S	3 970	103	123	1 080	539	69 S	3 210	22
23	274	140	3 310	99.4	124 S	1 080	476	66 S	2 800	23
24	238	147	3 000	96.1	143 S	1 190	387	91 S	3 120	24
25	209	155	2 800	93.4	184	1 240	328	109 S	3 070	25
26	190	180	2 830	91.5	139	1 100	268	138 S	3 200	26
27	182	188 S	2 920	88.8	117 S	898	226	148	2 880	27
28	175	234 S	3 540	86.3	111	828	188	183 S	2 780	28
29	167	228 S	3 300	84.5	107	781	177	203 S	3 100	29
30	161	220 S	3 080	81.8	107	754	168	211 S	3 080	30
31				77.9	110	740				31
TOTAL	18 288		337 610	3 733.5		50 971	9 844.5		222 353	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

RED RIVER AT EMERSON - STATION NO. 09ED001

SUSPENDED SEDIMENT FOR 1984

JUL				AUG			SEP			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	185	172 S	2 450	56.7	141	691	31.2	105	283	1
2	185	275 S	3 920	55.3	140 S	668	30.5	99	261	2
3	181	307 S	4 270	54.2	132 S	618	29.5	91	232	3
4	154	345 S	4 590	53.7	123	571	28.4	83	204	4
5	144	343 S	4 270	52.0	139 S	624	27.9	79 S	190	5
6	135	248 S	2 870	51.6	128 S	571	27.5	80	191	6
7	126	274 S	2 880	48.5	109	461	27.9	81 S	195	7
8	120	278	2 880	48.2	106	441	28.2	80	195	8
9	114	242 S	2 380	48.7	109	459	28.6	79 S	197	9
10	110	230	2 190	49.5	113	483	29.1	78	195	10
11	105	207	1 880	49.3	118	503	29.1	83 S	209	11
12	102	178 S	1 570	48.3	128 S	534	28.9	88	220	12
13	99.5	180	1 550	46.9	149 S	604	28.5	83 S	204	13
14	96.3	191	1 590	46.4	157	629	27.8	79 S	190	14
15	91.5	208 S	1 640	45.0	155	607	27.1	75	176	15
16	87.7	213	1 610	43.5	150	564	26.5	72	165	16
17	83.5	210	1 520	42.5	146	536	26.3	68	155	17
18	79.7	208	1 420	41.8	150 S	542	26.1	64	144	18
19	75.6	200	1 310	42.1	160 S	582	25.2	61	133	19
20	72.6	185	1 160	42.5	145 S	532	25.0	57	126	20
21	70.2	164	995	42.0	134	486	26.0	53	119	21
22	68.5	155 S	917	39.9	131	452	26.0	51	115	22
23	67.3	152	884	38.2	130	429	26.0	48	108	23
24	65.8	153 S	870	36.1	130	405	25.3	45	101	24
25	64.4	149 S	829	33.4	129	372	25.0	44	95.0	25
26	62.4	145	782	31.5	127	347	25.2	41	89.3	26
27	61.0	144	759	30.6	125	333	25.2	39	84.9	27
28	60.1	144	748	30.8	122	325	25.0	36 S	77.8	28
29	59.7	143	738	30.9	118 S	315	24.9	35	77.4	29
30	58.9	143	728	31.1	114	305	24.4	35	73.8	30
31	58.1	142	713	31.2	111	299				31
TOTAL	2 984.1		57 013	1 343.1		15 290	814.5		4 814.2	TOTAL

OCT				NOV			DEC			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	22.9	35	69.2	105	76	689	49.7 B	37	159	1
2	21.3	35	64.4	92.0 B	79	626	50.2 B	34	147	2
3	19.8	34	58.2	76.5 B	79	526	49.6 B	30	129	3
4	19.0	34	55.6	72.5 B	79	495	48.4 B	27	113	4
5	18.1	34	53.2	63.1 B	80	436	47.3 B	24	98.1	5
6	17.0	34	49.9	57.0 B	77 S	379	44.1 B	23	87.6	6
7	15.9	34	46.7	53.5 B	75	352	39.3 B	20	67.9	7
8	14.4	34	42.3	51.4 B	74	329	34.1 B	19	55.0	8
9	13.1	34	38.5	50.9 B	72	317	29.7 B	18	46.2	9
10	12.2	34	35.8	49.5 B	71	305	26.2 B	18 S	40.7	10
11	11.0	34	32.3	48.8 B	71	299	25.0 B	18	38.9	11
12	9.78	34	28.7	48.0 B	70	290	26.9 B	17	39.5	12
13	9.06	34	26.6	47.2 B	69	281	32.0 B	17	47.0	13
14	8.09	34	23.8	46.7 B	70	282	39.0 B	17	57.3	14
15	8.84	37	28.3	46.0 B	70	278	44.6 B	16	61.7	15
16	10.2	45	39.7	45.3 B	67	262	47.9 B	16	66.2	16
17	11.9	50	51.7	45.0 B	66	257	49.3 B	16	68.2	17
18	12.4	88	94.3	44.7 B	66	255	48.6 B	16	67.2	18
19	15.1	126	164	44.2 B	61	233	48.6 B	16	64.4	19
20	23.5	158	321	43.9 B	56	212	44.9 B	16	62.1	20
21	58.4	153	772	43.4 B	51	191	44.0 B	16	60.8	21
22	84.3	140	1 020	43.2 B	47	175	43.4 B	15	56.2	22
23	94.3	128	1 030	43.0 B	45	167	42.5 B	15	55.1	23
24	117	113	1 140	42.7 B	43	159	41.5 B	15	53.6	24
25	144	101	1 260	42.5 B	42	154	40.7 B	15	52.7	25
26	154	93	1 220	43.4 B	41	154	40.0 B	14	48.4	26
27	152	84	1 100	44.9 B	41	159	39.4 B	14	47.7	27
28	147	81	1 030	47.0 B	40	162	38.7 B	14	46.6	28
29	136	80	954	48.1 B	39	165	38.2 B	13	42.8	29
30	126	78	849	49.4 B	38	162	37.6 B	13	42.5	30
31	115	77	765				37.2 B	12	38.5	31
TOTAL	1 623.57		12 474.4	1 582.2		8 763	1 285.8		2 062.5	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

RED RIVER AT EMERSON - STATION NO. 05OC001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)		PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JAN 05	12:00	0.5	41.4	W	10	MID	X												405				DH48
FEB 07	13:00	0.5	35.3	W	10	MID	X												379				DH48
MAR 07	13:00	0.5	7.52	S	17	10.0	Z												356				DH59
MAR 07	13:05	0.5	14.4	S	13	22.0	Z												353				DH59
MAR 07	13:10	0.5	17.5	S	11	34.0	Z												352				DH59
MAR 07	13:11	0.5	17.5	S	10	34.0	Z												356				DH59
MAR 07	13:15	0.5	17.8	S	13	46.0	Z												356				DH59
MAR 07	13:20	0.5	11.5	S	11	58.0	Z												353				DH59
APR 02	14:00	0.5	449	W	381	131		44	56	80	86	94	97	99	100				289	3	41	56	DH59
APR 07	13:00	5.0	239		328	98.0	M												266				D49
APR 07	13:05	5.0	194		268	119	M												261				D49
APR 07	13:10	5.0	134		362	131	M												262				D49
APR 07	13:15	5.0	141		287	139	M												264				D49
APR 07	13:20	5.0	151		368	152	M												258				D49
APR 09	13:30	5.0	235		305	98.0	M	59	70	87	90	96	97	99	100				271	3	27	70	D49
APR 09	13:35	5.0	202		294	119	M	55	66	84	92	95	97	98	99	100			263	3	31	66	D49
APR 09	13:40	5.0	131		272	131	M	49	68	85	90	95	96	99	100				271	4	28	68	D49
APR 09	13:45	5.0	144		275	139	M	49	69	87	92	95	98	99	100				272	2	29	69	D49
APR 09	13:50	5.0	150		269	152	M	51	72	83	89	94	95	97	99	100			267	5	23	72	D49
APR 12	08:00	7.0	841	N	122	131																	DH59
APR 12	12:30	7.0	231		157	98.0	M												300				D49
APR 12	12:35	7.0	187		166	119	M												302				D49
APR 12	12:40	7.0	129		161	131	M												300				D49
APR 12	12:45	7.0	140		173	139	M												302				D49
APR 12	12:50	7.0	148		176	152	M												303				D49
APR 13	08:00	7.0	836	N	121	131																	DH59
APR 14	08:00	8.0	830	N	121	131																	DH59
APR 15	08:00	8.0	765	N	107	131																	DH59
APR 16	08:00	8.0	689	N	109	131																	DH59
APR 17	08:00	8.0	632	N	112	131																	DH59
APR 18	08:00	8.0	568	N	112	131																	DH59
APR 19	08:00	8.0	506	N	112	131																	DH59
APR 19	13:00	10.0	135		108	101	M												458				DH59
APR 19	13:05	10.0	113		105	119	M												447				DH59
APR 19	13:10	10.0	111		108	131	M												447				DH59
APR 19	13:15	10.0	88.0		105	143	M												448				DH59
APR 19	13:20	10.0	70.0		108	156	M												442				DH59
APR 21	08:00	10.0	378	N	138	131																	DH59
APR 22	08:00	11.0	321	N	143	131													481				DH59
APR 27	08:00	12.0	182	N	177	131													495				DH59
APR 26	08:00	10.0	175	N	234	131																	DH59
APR 29	08:00	9.0	167	N	228	131																	DH59
APR 30	12:00	9.0	41.9		213	105	M												506				DH59
APR 30	12:05	9.0	31.8		256	119	M												509				DH59
APR 30	12:10	9.0	42.0		217	131	M												507				DH59
APR 30	12:15	9.0	33.5		212	143	M												516				DH59
APR 30	12:20	9.0	17.2		214	152	M												511				DH59
MAY 01	08:00	9.0	159	N	207	131																	DH59
MAY 03	08:00	9.0	158	N	158	131																	DH59
MAY 04	08:00	11.0	157	N	147	131																	DH59
MAY 05	08:00	10.0	153	N	148	131													509				DH59
MAY 07	08:00	9.0	145	N	192	131																	DH59
MAY 09	08:00	10.0	136	N	188	131																	DH59
MAY 10	08:00	11.0	135	N	186	131																	DH59
MAY 11	08:00	11.0	133	N	188	131																	DH59
MAY 13	08:00	12.0	130	N	148	131													502				DH59
MAY 14	08:00	12.0	129	N	142	131																	DH59
MAY 15	08:00	14.0	125	N	153	131																	DH59
MAY 20	08:00	15.0	110	N	142	131													543				DH59
MAY 23	08:00	15.0	99.4	N	122	131																	DH59
MAY 24	08:00	15.0	96.1	N	138	131																	DH59
MAY 27	08:00	15.0	88.8	N	117	131													523				DH59
JUN 03	08:00	15.0	89.8	N	121	131																	DH59
JUN 04	08:00	15.0	88.3	N	118	131																	DH59
JUN 05	11:30	15.0	12.7		95	105	M												487				DH59
JUN 05	11:35	15.0	11.9		99	119	M												492				DH59
JUN 05	11:40	15.0	17.4		102	131	M												493				DH59
JUN 05	11:45	15.0	17.0		97	140	M												488				DH59
JUN 05	11:50	15.0	8.89		92	149	M												489				DH59
JUN 08	08:00	19.0	87.3	N	120	131																	DH59
JUN 09	08:00	18.0	73.8	N	503	131																	DH59
JUN 10	08:00	18.0	150	N	539	131																	DH59
JUN 11	08:00	17.0	304	N	646	131		34	64	81	92	96	98	99	100				248	2	34	64	DH59
JUN 12	08:00	17.0	408	N	851	131		41	65	84	91	97	98	99	100				241	2	33	65	DH59
JUN 13	08:00	18.0	485	N	795	131		42	70	83	96	97	98	100					247	2	28	70	DH59
JUN 15	08:00	18.0	607	N	361	131																	DH59
JUN 16	08:00	19.0	644	N	182	131																	DH59
JUN 17	08:00	19.0	695	N	160	131																	DH59
JUN 18	12:00	20.0	194		162	104	M												322				D49
JUN 18	12:05	20.0	135		150	119	M												327				D49
JUN 18	12:10	20.0	105		148	131	M												321				D49
JUN 18	12:15	20.0	102		147	139	M												325				D49
JUN 18	12:20	20.0	137		145	148	M												328				D49
JUN 19	08:00	20.0	868	N	120	131													370				DH59
JUN 20	11:00	21.0	179		80	102	M												383				D49
JUN 20	11:05	21.0	134		79	119	M												382				D49
JUN 20	11:10	21.0	102		78	131	M												380				D49
JUN 20	11:15	21.0	86.0		77	139	M												382				D49
JUN 20	11:20	21.0	124		76	148	M												386				D49
JUN 21	08:00	21.0	586	N	70	131																	DH59
JUN 22	08:00	21.0	539	N	74	131													419				DH59
JUN 23	08:00	21.0	478	N	84	131																	DH59
JUN 24	08:00	22.0	387	N	87	131																	DH59
JUN 25	08:00	22.0	326	N	130	131																	DH59
JUN 25	13:00	23.0	87.3		114	105	M												502				DH59
JUN 25	13:05	23.0	85.6		112	119	M												508				DH59
JUN 25	13:10	23.0	88.3		110	131	M												504				DH59
JUN 25	13:15	23.0	83.6		121	139	M																DH59
JUN 25	13:20	23.0	89.1		95	149	M												509				DH59
JUN 26	08:00	22.0	288	N	134	131																	DH59
JUN 28	08:00	22.0	195	N	156	131													490				DH59
JUN 29	08:00	23.0	177	N	189	131																	DH59
JUN 30	08:00	22.0	168	N	222	131																	DH59

NOTE : SINGLE VERTICAL LOCATED AT 131 METRES

DISCHARGE SYMBOL(S): S - ICE CONDITIONS N - DAILY MEAN W - DAILY MEAN; ICE CONDITIONS

VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL
Z - A SEDIMENT MEASUREMENT VERTICAL NOT AT THE REGULAR MEASUREMENT CROSS-SECTION

CONTINUED

RED RIVER AT EMERSON - STATION NO. 05DC001 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)		PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JUL 01	12:00	23.0	165	H	165	131																	DH59
JUL 02	12:00	23.0	165	H	299	131																	DH59
JUL 03	12:00	24.0	181	H	302	131																	DH59
JUL 04	12:00	23.0	154	H	314	131																	DH59
JUL 04	13:00	24.0	40.0		352	105	M												482				DH59
JUL 04	13:05	24.0	31.4		356	119	M												482				DH59
JUL 04	13:10	24.0	34.5		347	131	M												481				DH59
JUL 04	13:15	24.0	29.1		348	140	M												487				DH59
JUL 04	13:20	24.0	25.1		345	149	M												487				DH59
JUL 05	12:00	22.0	144	H	354	131													452				DH59
JUL 06	12:00	22.0	135	H	234	131																	DH59
JUL 07	12:00	22.0	126	H	266	131																	DH59
JUL 09	12:00	23.0	114	H	239	131																	DH59
JUL 12	12:00	24.0	102	H	174	131													446				DH59
JUL 15	12:00		81.5	H	212	131																	DH59
JUL 22	12:00	24.0	68.5	H	155	131													428				DH59
JUL 24	12:00	24.0	65.8	H	156	131																	DH59
JUL 25	12:00	25.0	64.4	H	147	131																	DH59
AUG 02	20:00	25.0	55.3	H	140	131													422				DH59
AUG 03	19:00	26.0	54.2	H	127	131																	DH59
AUG 05	12:00	27.0	52.0	H	139	131																	DH59
AUG 06	12:00	27.0	51.6	H	123	131																	DH59
AUG 12	12:00	27.0	46.3	H	127	131													416				DH59
AUG 13	12:00	27.0	46.9	H	151	131																	DH59
AUG 18	12:00	27.0	41.8	H	149	131													370				DH59
AUG 19	12:00	24.0	42.1	H	152	131																	DH59
AUG 20	12:00	24.0	42.5	H	144	131																	DH59
AUG 29	13:30	24.0	2.35		116	104	M												345				DH59
AUG 29	13:35	24.0	7.47		117	125	M												344				DH59
AUG 29	13:40	24.0	6.05		122	131	M												343				---
AUG 29	13:45	24.0	9.48		111	140	M												342				---
AUG 29	13:50	24.0	5.43		121	149	M												355				---
SEP 05	12:00	16.0	27.9	H	78	131													304				DH59
SEP 07	12:00	16.0	27.9	H	82	131																	DH59
SEP 09	12:00	16.0	26.6	H	78	131																	DH59
SEP 11	12:00	16.0	29.1	H	83	131																	DH59
SEP 13	12:00	16.0	28.5	H	82	131													293				DH59
SEP 14	12:00	16.0	27.6	H	78	131																	DH59
SEP 28	12:00	16.0	25.0	H	36	131													318				DH59
NOV 06	12:00	0.5	12.6		79	105	M												507				DH59
NOV 06	12:05	0.5	7.16		80	116	M												506				DH59
NOV 06	12:10	0.5	12.0		74	125	M												503				DH59
NOV 06	12:15	0.5	7.47		73	131	M												503				DH59
NOV 06	12:20	0.5	17.2		78	149	M												494				DH59
NOV 06	12:30	0.5	57.0	W	74	131													498				DH59
DEC 10	11:30	0.5	5.76	B	18	9.0	Z												657				DH48
DEC 10	11:35	0.5	5.89	B	17	18.0	Z												656				DH48
DEC 10	11:40	0.5	4.67	B	16	30.0	Z												666				DH48
DEC 10	11:45	0.5	3.61	B	17	39.0	Z												663				DH48
DEC 10	11:50	0.5	3.37	B	20	46.0	Z												686				DH48

NOTE : SINGLE VERTICAL LOCATED AT 131 METRES

DISCHARGE SYMBOL(S): B - ICE CONDITIONS H - DAILY MEAN W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL
Z - A SEDIMENT MEASUREMENT VERTICAL NOT AT THE REGULAR MEASUREMENT CROSS-SECTION

RED RIVER AT EMERSON - STATION NO. 05DC001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1956	APR-MAY	M-S	655	APR 21	265	MAY 10	39 300	APR 23	566 000	---	---	---
1961	APR-APR	M-S	310	APR 19	130	APR 25	1 570	APR 18	7 910	---	---	---
1978	JAN-DEC	M-C	733	JUL 17	19	FEB 08	55 100	APR 11 *	1 130 000	3 100	3 100	---
1979	JAN-DEC	M-C	523	JUL 07	12	JAN 23	48 800	APR 26	1 500 000 *	4 120	3 610	14.1
1980	JAN-DEC	M-C	659	APR 09	10	FEB 12	33 400	APR 09	369 000	1 010	2 740	33.4
1981	JAN-DEC	M-C	1 580	MAY 30 *	9	JAN 16	22 000	JUL 03	372 000	1 020	2 310	33.7
1982	JAN-DEC	M-C	981	JUN 09	9	JAN 05	33 200	APR 17	846 000	2 320	2 310	26.1
1983	JAN-DEC	M-C	666	JUN 16	6	FEB 07 *	23 200	APR 09	762 000	2 090	2 280	21.6
1984	JAN-DEC	M-C	851	JUN 12	10	JAN 05	32 700	JUN 13	732 000	2 000	2 240	18.7

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

RED RIVER AT SELKIRK - STATION NO. 05OJ005

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	SUMMARY : HISTORICAL MEAN LOAD (TONNES)	SUMMARY : STANDARD ERROR OF MEAN %
1956	APR-MAY	M-S	1 030	APR 23	230	MAY 18	---	---	---	---	---
1957	APR-JUN #	M-S	1 470	MAY 02 *	95	MAY 28	---	---	---	---	---
1958	APR-APR	M-S	695	APR 08	44	APR 30 *	---	---	---	---	---
1961	APR-APR	M-S	225	APR 19	100	APR 25	---	---	---	---	---
1974	APR-JUN #	M-MS	897	APR 23	158	JUN 04	---	---	---	---	---

M - MANUAL SAMPLING

S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

RED RIVER AT WINNIPEG - STATION NO. 05OJ001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	SUMMARY : HISTORICAL MEAN LOAD (TONNES)	SUMMARY : STANDARD ERROR OF MEAN %
1956	APR-JUN	M-S	840	APR 25	105	MAY 25	---	---	---	---	---
1957	APR-JUN	M-S	1 060	APR 29	60	APR 08 *	---	---	---	---	---
1958	APR-MAY	M-S	1 180	APR 10 *	130	APR 23	---	---	---	---	---
1959	APR-APR	M-S	605	APR 15	135	APR 28	---	---	---	---	---
1961	APR-APR	M-S	345	APR 19	145	APR 26	---	---	---	---	---

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

RED RIVER FLOODWAY NEAR LOCKPORT - STATION NO. 05OJ014

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : APR-MAY MEAN LOAD (TONNES)	SUMMARY : APR-MAY HISTORICAL MEAN LOAD (TONNES)	SUMMARY : APR-MAY STANDARD ERROR OF MEAN %
1969	APR-MAY	M-S	3 160	APR 17 *	51	MAY 19	73 200	APR 17	802 000	13 100	13 100	---
1970	APR-MAY	M-S	1 570	APR 20	127	MAY 14	50 900	APR 27	447 000	7 330	10 200	28.3
1971	APR-APR	M-S	2 800	APR 13	317	APR 22	54 100	APR 13	230 000	---	---	---
1972	APR-APR	M-S	528	APR 16	61	APR 23	2 990	APR 18	11 600	---	---	---
1973	APR-APR	M-S	1 340	JUL 05	6	DEC 23 *	0	APR 01	---	---	---	---
1974	APR-JUN	M-S	1 550	APR 19	125	MAY 17	85 800	APR 24 *	924 000 *	15 100	11 800	19.7
1975	APR-MAY	B-S	280	MAY 05	44	MAY 20	8 150	MAY 05	74 400	1 220	9 190	34.0
1976	APR-APR	B-S	1 080	APR 05	273	APR 15	21 000	APR 05	103 000	---	---	---

B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

RED RIVER FLOODWAY NEAR ST. NORBERT - STATION NO. 05OC017

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : APR-MAY MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1969	APR-MAY	M-S	2 300	APR 14	88	MAY 13	23 700	APR 17	324 000	5 320	5 320	---
1970	APR-MAY	M-S	1 080	APR 20	123	MAY 13	27 000	APR 27	310 000	5 080	5 200	2.3
1971	APR-APR	M-S	2 500	APR 12 *	497	APR 20	42 200	APR 13	188 000	---	---	---
1972	APR-APR	M-S	588	APR 18	480	APR 18	1 530	APR 18	5 380	---	---	---
1973	APR-APR	M-S	1 370	APR 14	8	FEB 18	0	APR 01	---	---	---	---
1974	APR-JUN	M-S	1 420	APR 19	116	MAY 14	54 200	APR 23 *	864 000	10 900	7 100	28.6
1975	APR-MAY	M-S	420	APR 30	88	MAY 18	4 870	MAY 04	52 200	855	5 540	37.2
1976	APR-APR	M-S	748	APR 08	198	APR 18	13 100	APR 10	80 000	---	---	---
1977	MAR-OCT	M-S	1 500	APR 13	3	FEB 28 *	0	MAR 01	---	0	4 430	43.9
1978	MAR-OCT	M-S	990	APR 15	109	MAY 03	33 100	APR 16	275 000	4 500	4 440	35.7
1979	MAR-OCT	M-S	871	APR 21	107	MAY 28	43 200	APR 23	888 000 *	11 400	6 440	30.7

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 50 05 28 N LONG 96 55 54 W
DRAINAGE AREA: 287 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD : 223 392.6 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

	JAN			FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	60.5 B	13	68.0	58.2 B	12	61.4	61.0 B	12	63.2	1
2	60.3 B	13	67.7	58.4 B	12	60.5	64.3 B	12	66.7	2
3	61.1 B	13	68.5	57.8 B	12	59.9	68.4 B	12	76.9	3
4	61.2 B	13 S	68.7	57.5 B	12	59.7	73.1 B	12	75.8	4
5	61.4 B	13	69.0	57.4 B	12	59.5	76.2 B	12	79.0	5
6	61.5 B	13	69.1	57.5 B	11	54.6	78.2 B	12	81.1	6
7	62.0 B	13	69.6	57.4 B	11	54.6	80.4 B	12	83.4	7
8	62.3 B	13	70.0	56.7 B	11	53.9	82.5 B	12 S	85.5	8
9	62.5 B	13	70.2	56.3 B	11	53.5	85.0 B	13	95.5	9
10	62.3 B	13	70.0	56.3 B	11 S	53.6	87.1 B	13	97.8	10
11	62.3 B	13	70.0	55.1 B	11	52.4	88.1 B	13	100	11
12	62.6 B	12	64.9	56.0 B	11	53.2	90.1 B	14	109	12
13	62.5 B	12	64.8	56.3 B	11	53.5	90.9 B	15	118	13
14	62.6 B	12	64.9	54.9 B	11	52.2	91.4 B	15	118	14
15	62.9 B	12	65.2	54.6 B	11	51.9	91.4 B	15	118	15
16	62.6 B	12	64.9	54.4 B	11	51.7	90.0 B	14	108	16
17	62.2 B	12	64.5	54.1 B	11	51.4	88.3 B	14	107	17
18	62.0 B	12	64.3	53.6 B	11	50.9	85.6 B	15	111	18
19	61.7 B	12	64.0	53.1 B	11	50.5	82.5 B	16	114	19
20	61.5 B	12	63.8	53.4 B	12	55.4	79.7 B	16	110	20
21	61.0 B	12	63.2	53.3 B	12	55.3	77.4 B	15	100	21
22	60.4 B	12	62.6	53.7 B	12	55.7	76.1 B	13	85.5	22
23	59.8 B	12	62.0	54.0 B	12	56.0	75.1 B	14	90.8	23
24	59.0 B	12	61.2	54.1 B	12	56.1	75.2 B	15	97.5	24
25	58.9 B	12	61.1	54.6 B	12	56.6	76.6 B	15	99.3	25
26	58.9 B	12	61.1	55.3 B	12	57.3	80.5 B	15	104	26
27	59.7 B	12	61.9	56.6 B	12	58.7	81.9 B	19	134	27
28	60.2 B	12	62.4	57.9 B	12	60.0	81.3 B	34	268	28
29	60.4 B	12	62.6	58.1 B	12	61.3	112 B	50	484	29
30	60.2 B	12	62.4				170 B	70	1 030	30
31	59.8 B	12	62.0				280 B	100	2 250	31
TOTAL	1 896.3		2 024.7	1 618.7		1 611.2	2 811.3		6 656.0	TOTAL

	APR			MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	300 B	139	3 800	209	72 S	1 300	125	51 S	551	1
2	350 B	197	5 880	201	56 S	973	122	49 S	516	2
3	400 B	247	8 540	196	49 S	830	118	55 S	561	3
4	450 B	301	11 700	195	46 S	813	114	50 S	492	4
5	510 B	401 S	17 700	198	46 S	821	111	43 S	412	5
6	864 B	726 S	64 200	198	45 S	770	112	52 S	503	6
7	1 070 B	1 080	99 800	195	50 S	842	114	46 S	473	7
8	1 100 B	990	94 100	190	60 S	985	118	41 S	416	8
9	1 020	899	79 200	184	51 S	811	121	30 S	314	9
10	984	784 S	66 700	180	43 S	668	137	33 S	391	10
11	966	694 S	57 900	184	41 S	652	161	52 S	723	11
12	956	623 S	51 500	186	44 S	707	222	160 S	3 070	12
13	948	509 S	41 700	186	47 S	755	345	181 S	5 400	13
14	933	432 S	34 800	186	43 S	691	449	352 S	13 700	14
15	910	371 S	29 200	185	46 S	735	518	678 S	39 300	15
16	881	296 S	22 700	183	51 S	806	577	974 S	48 600	16
17	843	259 S	18 900	180	59 S	918	666	802 S	46 100	17
18	787	204 S	13 900	176	60 S	907	705	592 S	36 100	18
19	724	180 S	11 300	171	53 S	783	768	461 S	31 400	19
20	663	166	9 510	166	53 S	760	763	377 S	24 500	20
21	598	152 S	7 850	166	58 S	832	755	325 S	21 200	21
22	533	147 S	6 770	163	60 S	845	725	279 S	18 900	22
23	474	145 S	5 940	157	57 S	773	752	250 S	16 200	23
24	416	140 S	5 030	154	60 S	798	710	214 S	13 100	24
25	362	140 S	4 380	151	65 S	848	649	190 S	10 700	25
26	313	139 S	3 780	146	63 S	805	571	165 S	8 140	26
27	275	139 S	3 300	143	61 S	754	490	161 S	6 820	27
28	249	118 S	2 640	139	60 S	721	417	140 S	5 040	28
29	233	83 S	1 670	136	55 S	642	358	90 S	2 770	29
30	221	72 S	1 370	132	53 S	604	309	103 S	2 750	30
31				128	50 S	554				31
TOTAL	19 333		775 620	5 365		24 815	12 170		359 144	TOTAL

B - ICE CONDITIONS S - SAMPLE(S) COLLECTED THIS DAY

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010

SUSPENDED SEDIMENT FOR 1984

JUL				AUG			SEP			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	274	73 S	1 730	86.2	33 S	246	42.0	30 S	109	1
2	253	76 S	1 660	83.3	30 S	216	41.8	24 S	86.7	2
3	240	73 S	1 510	80.7	28 S	195	42.0	26 S	94.3	3
4	233	77 S	1 550	76.8	25 S	166	42.5	24 S	88.1	4
5	227	79 S	1 550	74.1	23 S	147	43.1	19 S	70.8	5
6	218	74 S	1 390	71.9	21 S	130	41.9	30 S	109	6
7	206	58 S	1 030	72.1	19 S	118	40.0	25 S	86.4	7
8	195	48	808	71.5	18 S	111	39.3	43 S	146	8
9	185	55 S	879	69.1	23 S	137	39.5	20 S	68.4	9
10	176	57 S	887	66.7	29 S	167	39.8	19 S	65.3	10
11	172	45 S	669	65.5	21 S	119	40.0	24 S	82.9	11
12	167	46 S	664	63.9	29 S	160	41.6	27 S	97.0	12
13	162	61 S	854	62.6	25 S	135	41.9	26 S	94.1	13
14	157	63 S	855	61.4	24 S	127	41.8	27 S	97.5	14
15	152	61 S	801	60.2	32 S	166	42.0	32 S	116	15
16	146	58 S	732	59.2	30 S	153	42.2	23 S	83.9	16
17	140	46 S	556	57.5	21 S	104	42.4	16 S	58.6	17
18	136	49 S	576	56.3	22 S	107	42.3	21 S	76.7	18
19	131	44 S	498	54.4	24 S	113	44.3	25 S	95.7	19
20	126	53	577	53.3	28 S	129	44.7	26 S	100	20
21	121	48 S	502	53.8	29 S	135	43.9	29 S	110	21
22	117	42 S	425	54.3	29 S	136	44.5	29 S	111	22
23	112	46 S	445	54.4	28 S	132	42.5	28 S	103	23
24	109	47 S	443	52.7	30 S	137	42.7	30 S	111	24
25	105	46 S	417	51.1	26 S	115	44.0	28 S	106	25
26	102	47 S	414	48.7	28 S	118	45.8	25 S	98.9	26
27	99.4	43 S	369	45.5	18 S	70.8	46.0	29 S	120	27
28	96.3	36 S	300	43.7	24 S	90.6	46.9	31 S	126	28
29	92.4	32 S	255	42.5	23 S	84.5	46.4	31 S	124	29
30	89.8	28 S	217	41.4	35 S	125	46.3	30 S	120	30
31	87.6	36 S	272	41.4	31 S	111				31
TOTAL	4 827.5		23 816	1 876.2		4 200.9	1 286.2		2 956.3	TOTAL

OCT				NOV			DEC			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	44.8	23 S	89.0	178	151	2 320	73.6 B	20	127	1
2	43.9	25 S	94.8	159	83	1 140	75.6 B	20	131	2
3	45.8	32 S	127	138 B	43	513	76.9 B	19	126	3
4	45.1	24 S	83.5	120 B	36	373	76.2 B	19	128	4
5	45.0	28 S	109	108 B	33	308	76.6 B	18	119	5
6	43.4	28 S	105	97.0 B	32	268	71.8 B	17	105	6
7	43.1	26 S	98.8	85.2 B	31	228	69.7 B	16	96.4	7
8	41.4	27 S	95.6	82.4 B	30	214	64.9 B	16	89.7	8
9	40.6	23 S	80.7	76.5 B	29	192	52.0 B	15	67.4	9
10	41.2	16 S	57.0	75.2 B	28	182	46.5 B	14	56.2	10
11	42.5	18 S	66.1	72.8 B	27	172	43.5 B	14	52.6	11
12	41.1	28 S	99.4	75.2 B	27	175	41.7 B	13 S	46.8	12
13	38.5	27 S	89.8	75.2 B	28	182	41.0 B	13	46.1	13
14	39.8	25 S	86.0	75.6 B	27	175	40.5 B	13	45.5	14
15	40.5	37 S	129	76.5 B	27	178	40.0 B	13	44.9	15
16	45.2	32 S	125	78.4 B	28	190	46.0 B	13	51.7	16
17	39.0	32 S	108	83.1 B	29	208	54.0 B	13	60.7	17
18	36.4	39 S	129	83.0 B	29	208	62.2 B	13	69.9	18
19	40.1	34 S	118	83.0 B	28	201	65.4 B	13	73.5	19
20	49.6	23 S	99.0	82.0 B	27	191	68.4 B	13	76.8	20
21	51.2	22 S	97.3	78.5 B	27 S	183	67.9 B	13	75.3	21
22	49.7	22 S	94.5	73.7 B	26	166	66.1 B	13	74.2	22
23	50.8	18 S	94.6	72.1 B	26	162	63.3 B	13	71.1	23
24	88.2	15 S	114	69.5 B	25	150	63.5 B	13	71.3	24
25	111	14 S	134	66.8 B	24	139	63.9 B	13	71.8	25
26	134	23 S	266	67.5 B	24	140	62.8 B	13	70.5	26
27	170	28 S	411	72.2 B	23	143	61.7 B	13	69.3	27
28	210	26 S	472	74.8 B	22	142	59.0 B	14	71.4	28
29	208	41	737	74.0 B	22	141	58.0 B	14	70.2	29
30	202	194	3 390	72.1 B	21	131	58.9 B	14	71.2	30
31	191	201 S	3 320				59.4 B	14	71.9	31
TOTAL	2 325.1		11 129.1	2 626.3		9 116	1 873.0		2 403.4	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)		PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JAN 04	11:30	0.5	61.2	B	13	95.0	X												585				DH59
FEB 10	14:30	0.5	56.3	B	11	95.0	X												516				DH59
MAR 08	12:00	0.5	21.6	B	11	60.0	M												456				DH59
MAR 08	12:05	0.5	17.7	B	11	80.0	M												458				DH59
MAR 08	12:10	0.5	17.9	B	12	95.0	M												452				DH59
MAR 08	12:15	0.5	16.5	B	12	115	M												457				DH59
MAR 08	12:20	0.5	11.9	B	13	140	M												460				DH59
APR 05	15:00	0.5	119	B	428	80.0	M												284				DH59
APR 05	15:05	0.5	85.7	B	412	80.0	M												293				DH59
APR 05	15:10	0.5	86.0	B	392	95.0	M												275				DH59
APR 05	15:15	0.5	97.6	B	407	115	M												271				DH59
APR 05	15:20	0.5	122	B	392	140	M												271				DH59
APR 06	09:30	2.0	864	W	698	MID		37	55	72	81	95	97	99	100				283	3	42	55	DH59
APR 06	11:00	2.0	884	W	868	MID		26	49	71	86	97	99	100					266	1	50	49	DH59
APR 10	13:30	6.0	263		778	85.0	M	33	57	73	85	92	95	98	100				276	5	38	57	D49
APR 10	13:35	6.0	135		778	80.0	M	35	60	74	87	92	95	98	100				279	5	35	60	D49
APR 10	13:40	6.0	184		766	95.0	M	34	57	74	85	92	94	97	100				283	6	37	57	D49
APR 10	13:45	6.0	217		773	115	M	38	54	74	85	92	95	97	99	100			272	4	42	54	D49
APR 10	13:50	6.0	215		776	150	M	46	59	77	85	94	97	99	100				285	3	38	59	D49
APR 10	15:00	6.0	984	H	737	MID													273				DH59
APR 10	16:30	5.0	984	H	994	MID													265				DH59
APR 11	13:00	6.0	966	H	662	MID													273				DH59
APR 12	17:30	7.0	956	H	583	MID													284				DH59
APR 13	19:00	5.0	946	H	457	MID																	DH59
APR 14	10:00	6.0	933	H	433	MID																	DH59
APR 15	18:00	8.0	910	H	353	MID																	DH59
APR 16	16:50	9.0	881	H	288	MID													324				DH59
APR 17	16:40	9.0	843	H	263	MID																	DH59
APR 18	13:30	9.0	187		205	80.0	M												355				D49
APR 18	13:35	9.0	128		202	80.0	M												357				D49
APR 18	13:40	9.0	136		199	95.0	M												357				D49
APR 18	13:45	9.0	151		206	115	M												360				D49
APR 18	13:50	9.0	195		199	140	M												363				D49
APR 18	14:30	9.0	788		214	MID													358				DH59
APR 18	19:30	9.0	767	H	201	MID																	DH59
APR 19	06:00	8.0	724	H	194	MID																	DH59
APR 19	19:00	10.0	724	H	184	MID													369				DH59
APR 21	10:00	10.0	598	H	166	MID																	DH59
APR 22	10:00	11.0	533	H	157	MID													422				DH59
APR 23	09:00	11.0	474	H	155	MID																	DH59
APR 24	17:00	12.0	416	H	151	MID																	DH59
APR 25	17:00	12.0	362	H	147	MID																	DH59
APR 26	17:00	9.0	313	H	147	MID																	DH59
APR 27	17:00	8.0	275	H	150	MID													487				DH59
APR 28	13:00	8.0	249	H	118	MID																	DH59
APR 29	19:30	7.0	233	H	72	MID																	DH59
APR 30	12:30	8.0	221	H	75	MID																	DH59
MAY 01	18:30	8.0	209	H	66	MID																	DH59
MAY 02	18:00	10.0	201	H	49	MID																	DH59
MAY 03	12:00	10.0	42.0		50	80.0	M												501				DH59
MAY 03	12:05	10.0	35.0		50	80.0	M												485				DH59
MAY 03	12:10	10.0	37.4		48	95.0	M												493				DH59
MAY 03	12:15	10.0	38.6		46	115	M												496				DH59
MAY 03	12:20	10.0	37.0		45	140	M												490				DH59
MAY 03	13:30	10.0	190		46	MID													500				DH59
MAY 03	18:00	10.0	196	H	47	MID																	DH59
MAY 04	18:00	10.0	198	H	46	MID													503				DH59
MAY 05	18:00	12.0	198	H	43	MID																	DH59
MAY 06	17:00	11.0	198	H	41	MID																	DH59
MAY 07	17:00	10.0	195	H	50	MID																	DH59
MAY 08	16:40	10.0	190	H	56	MID													511				DH59
MAY 09	18:00	12.0	184	H	47	MID																	DH59
MAY 10	18:00	12.0	180	H	38	MID																	DH59
MAY 11	19:30	10.0	184	H	35	MID																	DH59
MAY 12	14:00	12.0	186	H	43	MID																	DH59
MAY 13	18:30	12.0	186	H	43	MID																	DH59
MAY 14	16:45	13.0	186	H	41	MID																	DH59
MAY 15	18:30	14.0	185	H	44	MID																	DH59
MAY 16	19:00	15.0	183	H	50	MID													526				DH59
MAY 17	20:15	14.0	180	H	58	MID																	DH59
MAY 18	06:00	14.0	175	H	56	MID																	DH59
MAY 19	14:00	15.0	171	H	49	MID																	DH59
MAY 20	14:00	14.0	166	H	50	MID																	DH59
MAY 21	15:30	15.0	166	H	58	MID																	DH59
MAY 22	16:45	15.0	163	H	56	MID																	DH59
MAY 23	19:00	15.0	157	H	52	MID													514				DH59
MAY 24	16:45	13.0	154	H	56	MID																	DH59
MAY 25	12:00	14.0	151	H	62	MID													521				DH59
MAY 26	21:00	14.0	146	H	57	MID													528				DH59
MAY 27	20:00	15.0	143	H	59	MID													545				DH59
MAY 28	18:30	16.0	139	H	54	MID													545				DH59
MAY 29	18:30	15.0	135	H	52	MID													553				DH59
MAY 30	18:30	17.0	132	H	49	MID																	DH59
MAY 31	08:00	16.0	128	H	54	MID																	DH59
JUN 01	12:30	17.0	125	H	45	MID																	DH59
JUN 02	16:00	17.0	122	H	49	MID																	DH59
JUN 03	12:00	18.0	118	H	52	MID																	DH59
JUN 04	12:30	18.0	114	H	48	MID																	DH59
JUN 05	08:00	17.0	111	H	41	MID																	DH59
JUN 06	16:30	18.0	112	H	53	MID													556				DH59
JUN 07	08:00	17.0	114	H	46	MID																	DH59
JUN 08	10:00	17.0	118	H	41	MID																	DH59
JUN 09	09:00	17.0	121	H	26	MID																	DH59
JUN 10	19:00	18.0	137	H	36	MID																	DH59
JUN 11	20:00	18.0	161	H	50	MID																	DH59
JUN 12	20:30	17.0	222	H	185	MID																	DH59
JUN 13	12:30	17.0	345	H	150	MID													444				DH59
JUN 14	08:00	16.0	449	H	286	MID																	DH59
JUN 15	08:00	18.0	516	H	786	MID		24	48	74	94	97	98	100					471	2	50	48	DH59
JUN 16	10:00	19.0	577	H	1020	MID		38	54	76	88	97	99	100					300	1	45	54	DH59
JUN 17	12:00	19.0	666	H	851	MID		33	48	68	83	92	97	99	100				286	2	49	48	DH59
JUN 18	08:00	18.0	706	H	650	MID		46	59	78	84	95	98	99	100				287	2	38	59	DH59

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): B - ICE CONDITIONS H - DAILY MEAN W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JUN 19	08:00	19.0	786	H	520	MID												293				DH59
JUN 19	11:30	19.0	186		466	80.0	M											301				D49
JUN 19	11:35	19.0	131		479	80.0	M											296				D49
JUN 19	11:40	19.0	137		476	95.0	M											300				D49
JUN 19	11:45	19.0	150		466	115	M											302				D49
JUN 19	11:50	19.0	184		465	140	M											296				D49
JUN 19	12:30	20.0	788	H	493	MID												296				DH59
JUN 19	12:31	19.0	785	H	526	MID																DH59
JUN 20	08:00	19.0	753	H	426	MID																DH59
JUN 21	07:00	20.0	755	H	374	MID																DH59
JUN 21	08:00	20.0	755	H	378	MID																DH59
JUN 21	10:45	21.0	177		350	80.0	M											336				DH59
JUN 21	10:50	21.0	125		338	80.0	M											338				D49
JUN 21	10:55	21.0	132		326	95.0	M											337				D49
JUN 21	11:00	21.0	146		357	115	M											343				D49
JUN 21	11:05	21.0	182		304	140	M											331				D49
JUN 22	16:30	21.0	785	H	306	MID												339				D49
JUN 23	14:30	20.0	752	H	268	MID																DH59
JUN 24	14:00	21.0	710	H	253	MID																DH59
JUN 25	12:30	21.0	649	H	230	MID																DH59
JUN 26	12:30	21.0	571	H	199	MID												392				DH59
JUN 27	08:00	20.0	490	H	188	MID																DH59
JUN 28	08:00	20.0	417	H	186	MID																DH59
JUN 29	14:00	23.0	356	H	83	MID																DH59
JUN 30	14:00	23.0	309	H	108	MID																DH59
JUL 01	16:00	24.0	274	H	71	MID																DH59
JUL 02	15:00	24.0	253	H	71	MID																DH59
JUL 03	07:00	21.0	240	H	67	MID												483				DH59
JUL 03	09:30	23.0	240	H	66	MID																DH59
JUL 03	13:00	24.0	55.7		81	60.0	M											485				DH59
JUL 03	13:05	24.0	42.4		75	80.0	M											495				DH59
JUL 03	13:10	24.0	46.1		76	95.0	M											503				DH59
JUL 03	13:15	24.0	47.3		70	115	M											494				DH59
JUL 03	13:20	24.0	49.8		69	140	M											495				DH59
JUL 04	17:00	23.0	233	H	71	MID												490				DH59
JUL 05	16:30	22.0	227	H	57	MID																DH59
JUL 06	17:00	23.0	218	H	57	MID																DH59
JUL 07	10:00	21.0	206	H	50	MID																DH59
JUL 09	17:00	24.0	185	H	50	MID																DH59
JUL 10	16:40	23.0	176	H	46	MID																DH59
JUL 11	17:00	24.0	172	H	38	MID																DH59
JUL 12	21:30	24.0	167	H	45	MID																DH59
JUL 13	14:30	24.0	162	H	55	MID																DH59
JUL 14	14:30	24.0	157	H	55	MID																DH59
JUL 15	21:00	23.0	152	H	57	MID																DH59
JUL 16	21:30	21.0	146	H	48	MID																DH59
JUL 17	21:00	23.0	140	H	49	MID												478				DH59
JUL 18	08:00	22.0	136	H	52	MID																DH59
JUL 19	08:00	22.0	131	H	36	MID																DH59
JUL 21	12:00	24.0	121	H	44	MID																DH59
JUL 22	17:00	23.0	117	H	39	MID																DH59
JUL 23	07:30	21.0	112	H	39	MID																DH59
JUL 24	12:30	23.0	108	H	42	MID												480				DH59
JUL 25	18:00	24.0	105	H	43	MID																DH59
JUL 26	08:00	22.0	102	H	45	MID																DH59
JUL 27	08:00	23.0	99.4	H	43	MID																DH59
JUL 28	21:30	24.0	96.3	H	31	MID																DH59
JUL 29	16:00	24.0	92.4	H	31	MID																DH59
JUL 30	21:00	24.0	89.8	H	26	MID																DH59
JUL 31	08:00	23.0	87.6	H	32	MID												475				DH59
AUG 01	19:30	25.0	86.2	H	26	MID																DH59
AUG 02	10:00	25.0	83.3	H	30	MID																DH59
AUG 03	07:30	23.0	80.7	H	26	MID																DH59
AUG 04	11:00	25.0	76.8	H	26	MID																DH59
AUG 05	10:00	26.0	74.1	H	25	MID																DH59
AUG 06	20:00	26.0	71.9	H	22	MID																DH59
AUG 07	07:30	25.0	72.1	H	20	MID												452				DH59
AUG 08	15:00	25.0	71.5	H	20	MID																DH59
AUG 09	17:00	24.0	69.1	H	24	MID																DH59
AUG 10	08:00	23.0	66.7	H	34	MID																DH59
AUG 11	14:30	25.0	65.5	H	19	MID																DH59
AUG 12	07:30	23.0	63.9	H	35	MID																DH59
AUG 13	08:00	23.0	62.6	H	26	MID																DH59
AUG 14	12:00	25.0	61.4	H	27	MID												465				DH59
AUG 15	07:45	22.0	60.2	H	31	MID																DH59
AUG 16	15:00	24.0	59.2	H	30	MID																DH59
AUG 17	17:00	24.0	57.5	H	22	MID																DH59
AUG 18	12:30	24.0	56.3	H	26	MID																DH59
AUG 19	12:30	24.0	54.4	H	26	MID																DH59
AUG 20	07:30	22.0	53.3	H	32	MID																DH59
AUG 21	16:30	21.0	53.8	H	34	MID												459				DH59
AUG 22	08:30	19.0	54.3	H	32	MID																DH59
AUG 23	16:30	22.0	54.4	H	33	MID																DH59
AUG 24	11:00	20.0	52.7	H	36	MID																DH59
AUG 24	11:30	22.0	12.0		33	60.0	M															DH59
AUG 24	11:35	22.0	9.54		32	80.0	M											461				DH59
AUG 24	11:40	22.0	9.85		33	95.0	M											466				DH59
AUG 24	11:45	22.0	11.4		32	115	M											465				DH59
AUG 24	11:50	22.0	8.87		33	140	M											466				DH59
AUG 24	13:15	22.0	52.7	H	39	MID												469				DH59
AUG 25	21:00	24.0	51.1	H	28	MID												462				DH59
AUG 26	15:00	24.0	48.7	H	36	MID																DH59
AUG 27	08:00	21.0	45.5	H	21	MID																DH59
AUG 28	07:45	21.0	43.7	H	28	MID												466				DH59
AUG 29	08:00	19.0	42.5	H	25	MID																DH59
AUG 30	07:45	19.0	41.6	H	26	MID																DH59
AUG 31	16:30	19.0	41.4	H	32	MID																DH59
SEP 01	16:00	19.0	42.0	H	40	MID																DH59
SEP 02	11:00	18.0	41.8	H	28	MID																DH59
SEP 03	17:00	17.0	42.0	H	35	MID																DH59
SEP 04	07:45	15.0	42.5	H	30	MID												454				DH59
SEP 05	18:00	19.0	43.1	H	24	MID																DH59
SEP 06	12:30	18.0	41.9	H	44	MID																DH59

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): H - DAILY MEAN
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

MANITOBA

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)		INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00		DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
SEP 07	18:45	19.0	40.0	H	37	MID																	DH59
SEP 08	18:30	17.0	39.3	H	54	MID																	DH59
SEP 09	07:45	15.0	39.5	H	26	MID																	DH59
SEP 10	19:00	17.0	39.8	H	27	MID																	DH59
SEP 11	07:45	14.0	40.0	H	27	MID																	DH59
SEP 12	20:00	15.0	41.8	H	35	MID																	DH59
SEP 13	17:00	15.0	41.9	H	30	MID																	DH59
SEP 14	15:00	15.0	41.8	H	34	MID																	DH59
SEP 15	14:00	14.0	42.0	H	35	MID																	DH59
SEP 16	10:00	14.0	42.2	H	33	MID																	DH59
SEP 17	17:30	18.0	42.4	H	24	MID																	DH59
SEP 18	18:30	17.0	42.3	H	24	MID																	DH59
SEP 19	18:30	17.0	44.3	H	32	MID													420				DH59
SEP 20	14:30	15.0	44.7	H	29	MID																	DH59
SEP 21	12:00	15.0	43.8	H	39	MID																	DH59
SEP 22	10:00	14.0	44.5	H	37	MID																	DH59
SEP 23	14:00	12.0	42.5	H	37	MID																	DH59
SEP 24	12:30	10.0	42.7	H	37	MID																	DH59
SEP 25	12:00	10.0	44.0	H	38	MID																	DH59
SEP 26	07:30	9.0	45.8	H	33	MID													420				DH59
SEP 27	12:30	10.0	48.0	H	38	MID																	DH59
SEP 28	10:00	9.0	46.9	H	39	MID																	DH59
SEP 29	18:30	10.0	46.4	H	40	MID																	DH59
SEP 30	10:00	10.0	48.3	H	36	MID																	DH59
OCT 01	07:45	9.0	44.8	H	33	MID													422				DH59
OCT 02	12:30	10.0	43.9	H	28	MID																	DH59
OCT 03	18:30	12.0	45.8	H	38	MID																	DH59
OCT 04	13:00	10.0	45.1	H	27	MID																	DH59
OCT 05	12:30	11.0	45.0	H	34	MID																	DH59
OCT 06	14:00	12.0	43.4	H	33	MID																	DH59
OCT 07	15:00	11.0	43.1	H	33	MID																	DH59
OCT 08	10:30	10.0	41.4	H	35	MID													417				DH59
OCT 09	16:30	16.0	40.6	H	27	MID																	DH59
OCT 10	10:00	12.0	41.2	H	19	MID																	DH59
OCT 11	17:00	14.0	42.5	H	26	MID																	DH59
OCT 12	17:00	15.0	41.1	H	37	MID																	DH59
OCT 13	10:00	13.0	38.5	H	34	MID																	DH59
OCT 14	14.00	14.0	39.8	H	29	MID																	DH59
OCT 15	18:30	14.0	40.5	H	45	MID													442				DH59
OCT 16	16:30	11.0	45.2	H	38	MID																	DH59
OCT 17	15:30	11.0	39.0	H	41	MID																	DH59
OCT 18	08:00	7.0	38.4	H	46	MID																	DH59
OCT 19	15:30	8.0	40.1	H	37	MID																	DH59
OCT 20	14:00	9.0	49.8	H	28	MID																	DH59
OCT 21	15:00	9.0	51.2	H	24	MID																	DH59
OCT 22	13:00	8.0	49.7	H	27	MID													456				DH59
OCT 23	13:00	8.0	50.8	H	23	MID																	DH59
OCT 24	12:30	8.0	88.2	H	19	MID																	DH59
OCT 25	12:30	5.0	111	H	18	MID																	DH59
OCT 26	12:40	7.0	134	H	27	MID																	DH59
OCT 27	15:00	4.0	170	H	29	MID																	DH59
OCT 28	16:00	3.0	210	H	36	MID																	DH59
OCT 31	11:30	2.0	33.8		170	140	M												406				DH59
OCT 31	11:35	2.0	39.7		182	115	M												412				DH59
OCT 31	11:40	2.0	39.0		211	95.0	M												411				DH59
OCT 31	11:45	2.0	38.2		216	80.0	M												409				DH59
OCT 31	11:50	2.0	41.8		225	80.0	M												415				DH59
OCT 31	11:55	2.0	191	H	147	MID													406				DH59
NOV 21	14:15	0.5	18.5		26	80.0	M												546				DH46
NOV 21	14:20	0.5	17.3		26	80.0	M												563				DH46
NOV 21	14:25	0.5	18.6		26	95.0	M												559				DH46
NOV 21	14:30	0.5	17.5		29	115	M												557				DH46
NOV 21	14:35	0.5	13.0		35	140	M												562				DH46

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): H - DAILY MEAN
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL

RED RIVER NEAR LOCKPORT - STATION NO. 05OJ010

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1962	APR-DEC	M-S	1 230	APR 25	10	OCT 04	183 000	APR 25	2 080 000	---	---	---
1963	JAN-DEC	M-C	1 590	JUN 08	4	FEB 19	58 200	APR 14	1 300 000	3 580	3 580	---
1964	JAN-DEC	M-C	2 080	APR 18	5	OCT 04	178 000	APR 18	1 870 000	5 380	4 470	20.4
1965	JAN-DEC	M-C	2 450	APR 14 *	10	MAR 02	289 000	APR 18	3 480 000	9 550	8 180	28.8
1966	JAN-DEC	M-C	1 340	JUL 05	8	DEC 23	137 000	APR 10	2 870 000	8 140	8 880	30.2
1967	JAN-DEC	M-C	1 010	APR 23	1	AUG 14 *	139 000	APR 23	2 420 000	6 630	8 850	15.7
1968	JAN-DEC	M-C	1 300	JUN 16	4	JAN 25	42 300	JUN 16	883 000	2 410	5 850	18.8
1969	JAN-DEC	M-C	1 700	APR 17	6	FEB 14	234 000	APR 17	3 420 000	9 380	6 440	18.4
1970	JAN-DEC	M-C	1 140	APR 18	6	OCT 08	140 000	APR 21	3 120 000	8 550	6 700	14.2
1971	JAN-DEC	M-C	2 230	APR 13	3	FEB 08	304 000	APR 13 *	1 910 000	5 230	6 540	13.1
1972	JAN-DEC	B-C	753	APR 17	7	OCT 18	68 800	APR 21	1 440 000	3 920	6 280	12.9
1973	JAN-DEC	B-C	593	MAR 29	2	JAN 19	27 200	MAR 28	256 000	701	5 770	15.4
1974	JAN-DEC	B-C	1 010	APR 24	3	FEB 01	212 000	APR 24	3 370 000	9 240	6 060	14.2
1975	JAN-DEC	B-C	1 020	APR 24	11	FEB 27	81 700	APR 24	2 070 000	5 680	6 030	13.2
1976	JAN-DEC	B-C	807	APR 11	10	OCT 19	103 000	APR 09	1 890 000	5 170	5 870	12.4
1977	JAN-DEC	B-C	236	APR 14	6	MAY 10	6 280	APR 13	51 500	141	5 580	14.1
1978	JAN-DEC	M-C	760	APR 11	13	FEB 06	115 000	APR 14	2 010 000	5 510	5 570	13.2
1979	JAN-DEC	M-C	798	APR 22	10	DEC 18	161 000	APR 23	3 710 000 *	10 200	5 850	12.7
1980	JAN-DEC	M-C	1 880	APR 14	9	DEC 17	163 000	APR 12	1 480 000	3 890	5 740	12.4
1981	JAN-DEC	M-C	116	APR 26	6	JAN 18	3 940	APR 02	86 800	238	5 450	13.4
1982	JAN-DEC	M-C	1 210	APR 17	6	FEB 19	124 000	APR 17	1 540 000	4 220	5 390	12.9
1983	JAN-DEC	M-C	487	APR 14	12	JAN 14	51 700	APR 10	1 380 000	3 780	5 320	12.5
1984	JAN-NOV	M-C	1 020	JUN 18	11	FEB 10	99 800	APR 07	1 220 000	3 340	5 230	12.3

B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

RED RIVER NEAR ST. NORBERT - STATION NO. 05OC006

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1967	APR-MAY #	M-S	880	APR 24	90	MAY 17	137 000	APR 23	1 100 000	---	---	---
1969	APR-MAY	M-S	1 780	APR 13	82	MAY 15	189 000	APR 13	1 120 000	---	---	---
1970	APR-MAY	M-S	1 280	APR 20	126	MAY 14	128 000	APR 20	1 240 000	---	---	---
1971	APR-APR	M-S	1 880	APR 13 *	408	APR 21	178 000	APR 13 *	872 000	---	---	---
1972	APR-APR	M-S	645	APR 19	652	APR 17	63 000	APR 19	290 000	---	---	---
1974	APR-MAY	M-S	1 720	APR 18	151	MAY 30	176 000	APR 18	1 610 000 *	---	---	---
1975	APR-MAY	M-S	379	MAY 01	78	MAY 18 *	33 100	MAY 01	282 000	---	---	---
1976	APR-APR	M-S	850	APR 11	227	APR 18	78 200	APR 07	473 000	---	---	---
1978	APR-MAY	M-S	811	APR 15	102	MAY 03	72 200	APR 15	984 000	---	---	---
1979	APR-MAY	M-S	867	APR 20	110	MAY 28	83 800	APR 21	1 020 000	---	---	---

M - MANUAL SAMPLING

S - SEASONAL OPERATION

\# - PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

MANITOBA

RED RIVER NEAR STE. AGATHE - STATION NO. 05DC012

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1961	JUL-DEC	M-S	50	OCT 20	4	JUL 24	140	OCT 21	5 050	---	---	---
1962	JAN-DEC	M-C	855	APR 26	7	JAN 24	72 400	APR 25	1 520 000	4 430	4 430	---
1963	JAN-DEC	M-C	1 880	JUN 05	4	FEB 28	49 800	JUN 05	923 000	2 530	3 480	27.3
1964	JAN-DEC	M-C	1 510	JUN 14	3	APR 03	72 800	APR 18	1 130 000	3 090	3 350	15.8
1965	JAN-DEC	M-C	1 370	APR 14	8	FEB 18	128 000	APR 14	1 850 000	5 050	3 780	15.5
1966	JAN-DEC	M-C	780	JUL 04	6	MAR 17	48 900	APR 07	1 390 000	3 800	3 780	12.0
1967	JAN-DEC	M-C	1 340	APR 22	6	FEB 02	124 000	APR 22	1 420 000	3 880	3 800	9.7
1968	JAN-DEC	M-C	1 350	JUN 14	3	JAN 24	40 200	JUN 14	950 000	2 600	3 530	9.8
1969	JAN-DEC	M-C	1 500	APR 13	3	FEB 28	127 000	APR 12	1 710 000	4 690	3 760	8.5
1970	JAN-DEC	M-C	898	APR 20	1	MAR 11 *	86 800	APR 20	1 520 000	4 440	3 840	8.0
1971	JAN-DEC	B-C	2 450	APR 12 *	7	FEB 08	307 000	APR 13 *	2 280 000 *	6 280	4 080	9.0
1972	JAN-DEC	B-C	887	APR 18	9	FEB 18	85 000	APR 18	987 000	2 840	3 950	9.0
1973	JAN-DEC	B-C	1 560	OCT 05	2	MAR 05	50 200	MAR 28	637 000	1 740	3 780	9.9
1974	JAN-DEC	B-C	1 430	APR 18	11	MAR 06	132 000	APR 18	2 030 000	5 560	3 900	9.5
1975	JAN-DEC	B-C	841	APR 25	8	FEB 03	82 800	APR 25	1 280 000	3 520	3 870	8.9
1976	JAN-DEC	B-C	795	APR 07	12	MAR 08	78 000	APR 07	929 000	2 540	3 780	8.8
1977	JAN-DEC	B-C	430	MAY 31	4	MAR 17	3 840	APR 13	78 500	215	3 580	10.7
1978	JAN-DEC	B-C	485	APR 14	10	MAR 21	54 700	APR 14	1 140 000	3 130	3 640	10.2

B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

ROSEAU RIVER AT GARDENTON - STATION NO. 05DD004

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 09 16 N LONG 96 41 15 W
DRAINAGE AREA: 4 470 km²
TYPE OF FLOW: NATURAL
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 7 231.46 TONNES FOR THE PERIOD MAR 01 TO OCT 31

REMARKS:

MAR				APR				MAY			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.385 B	48	1.45	23.6 B	113	230		10.7	12 S	11.1	1
2	0.542 B	50	2.34	23.8 B	129	265		12.0	19	19.7	2
3	0.699 B	50	3.02	24.3 B	103 S	216		12.5	16 S	17.3	3
4	0.542 B	44	2.06	39.3	172 S	584		12.3	13	13.8	4
5	0.407 B	37	1.30	36.8	153	484		11.5	10	10.0	5
6	0.383 B	30	0.99	33.4	124	358		11.0	7 S	6.65	6
7	0.367 B	25	0.79	32.8	109	309		10.3	6	5.34	7
8	0.377 B	24	0.78	32.2	95	264		9.38	6 S	4.85	8
9	0.427 B	23	0.85	32.1	85	236		9.06	5 S	3.91	9
10	0.436 B	23	0.87	31.7	82	225		9.00	9 S	7.00	10
11	0.447 B	22	0.85	31.8	82	225		8.82	12	9.14	11
12	0.445 B	20	0.77	32.3	81	226		9.15	11 S	8.70	12
13	0.385 B	19	0.63	30.7	72	191		9.62	9 S	7.46	13
14	0.344 B	18	0.53	28.9	54	135		9.11	8	6.30	14
15	0.341 B	17	0.50	27.7	44	105		8.41	7	5.02	15
16	0.337 B	16	0.47	26.5	38	89.3		7.86	6 S	4.07	16
17	0.292 B	15	0.38	24.8	34	73.1		7.26	6	3.76	17
18	0.240 B	13	0.27	22.8	30	59.4		6.42	6 S	3.33	18
19	0.207 B	12	0.21	21.0	26	47.2		6.12	6	3.17	19
20	0.191 B	11	0.18	19.0	23	37.6		5.94	7	3.59	20
21	0.192 B	9	0.15	17.4	20	30.1		5.86	7 S	3.54	21
22	0.193 B	8	0.13	15.8	17	23.2		5.33	7	3.22	22
23	0.181 B	8	0.13	14.4	13	16.2		4.81	7	2.97	23
24	0.213 B	8	0.15	13.1	10	11.3		4.70	7	2.84	24
25	0.204 B	8	0.16	11.8	7 S	7.20		4.63	7 S	2.74	25
26	0.603 B	11	0.57	10.3	7 S	6.23		4.46	7	2.71	26
27	2.49 B	15 S	3.23	9.88	11 S	9.48		4.15	8	2.87	27
28	6.25 B	20	10.8	9.26	12	9.60		4.09	8 S	2.63	28
29	11.7 B	40	40.4	9.00	11	8.55		4.02	8	2.78	29
30	16.3 B	64	90.1	9.74	12 S	10.1		3.89	6 S	1.91	30
31	21.0 B	89	161					3.31	5	1.43	31
TOTAL	67 100		326.06	696.38		4 491.76		236.61		184.13	TOTAL

JUN				JUL				AUG			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	3.07	4	1.06	18.1	23	36.0		2.58	14	3.13	1
2	2.64	3 S	0.68	17.7	23	35.2		2.32	14	2.81	2
3	2.12	3	0.55	16.9	23	33.6		2.01	14	2.43	3
4	2.07	3	0.54	15.5	22	29.5		1.77	13	1.99	4
5	1.96	3	0.51	14.0	22 S	26.5		1.60	13	1.80	5
6	2.61	4	0.90	12.0	22	22.8		2.41	13	2.71	6
7	3.70	5 S	1.60	10.1	22	19.2		2.38	12	2.47	7
8	4.88	7	2.95	8.73	22	16.6		2.01	12 S	2.08	8
9	10.6	14	12.8	8.90	21	16.1		1.74	12	1.80	9
10	17.1	23	34.0	8.68	21	15.7		1.48	12	1.54	10
11	21.7	32	60.0	9.07	21	15.5		1.24	11	1.16	11
12	24.9	47 S	101	9.30	21	15.9		1.03	11	0.96	12
13	26.7	53	122	9.11	21	15.5		0.921	11	0.86	13
14	27.8	46	110	9.33	21	15.9		0.805	11	0.77	14
15	28.5	42 S	103	11.0	22	20.9		0.737	10	0.64	15
16	29.4	39 S	99.1	11.9	24	24.7		0.681	10	0.59	16
17	30.1	35	91.0	12.3	22	23.4		0.657	10	0.57	17
18	29.9	31 S	80.1	11.7	20	20.2		0.616	9	0.48	18
19	29.7	31 S	79.5	10.5	20	18.1		0.584	9	0.44	19
20	29.3	30	76.9	9.23	19	15.2		0.545	8	0.38	20
21	29.0	29	72.7	8.01	18	12.5		0.561	8 S	0.39	21
22	28.7	26 S	69.4	6.95	17	10.2		0.526	8	0.36	22
23	28.2	27	65.8	5.95	17	8.74		0.508	8	0.35	23
24	27.3	26	61.2	5.07	16	7.01		0.476	8	0.33	24
25	26.4	24 S	54.7	4.42	15	5.73		0.533	8	0.37	25
26	25.9	23 S	51.5	3.83	15	4.95		0.461	8	0.32	26
27	25.0	22	47.5	3.40	14	4.11		0.404	8	0.28	27
28	22.7	23	45.1	3.04	14	3.68		0.352	8	0.24	28
29	20.4	23	40.5	2.73	14	3.30		0.309	8	0.21	29
30	18.7	23 S	37.2	2.83	14	3.18		0.269	8	0.19	30
31				2.74	14	3.31		0.247	8	0.17	31
TOTAL	561.05		1 522.69	262.62		507.32		32.764		32.68	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ROSEAU RIVER AT GARDENTON - STATION NO. 05OD004

SUSPENDED SEDIMENT FOR 1984

	SEP			OCT						
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.230	8	0.18	0.055	8	0.04				1
2	0.207	8	0.14	0.045	8	0.03				2
3	0.229	8	0.16	0.044	8	0.03				3
4	0.201	8	0.14	0.050	8	0.03				4
5	0.178	8	0.14	0.043	8	0.03				5
6	0.183	8	0.13	0.045	8	0.03				6
7	0.144	8	0.11	0.045	8	0.03				7
8	0.137	8	0.11	0.043	8	0.03				8
9	0.122	8	0.08	0.041	8	0.03				9
10	0.117	8	0.09	0.040	7	0.02				10
11	0.126	9	0.10	0.049	8	0.03				11
12	0.127	9 S	0.10	0.051	8	0.04				12
13	0.122	9	0.09	0.055	8	0.04				13
14	0.128	9	0.10	0.060	8	0.04				14
15	0.125	9	0.10	0.174	9	0.14				15
16	0.118	8	0.09	0.181	10	0.17				16
17	0.138	8	0.11	0.201	11	0.19				17
18	0.087	8	0.08	0.844	18	1.00				18
19	0.064	8	0.05	0.959	16	1.33				19
20	0.064	8	0.05	0.988	16	1.37				20
21	0.064	8	0.05	0.919	16	1.27				21
22	0.059	8	0.05	3.12	19	5.12				22
23	0.048	8	0.04	6.59	27	15.4				23
24	0.059	8	0.05	7.98	27	18.8				24
25	0.057	8	0.05	8.75	26	19.7				25
26	0.053	8	0.04	8.77	26	19.7				26
27	0.058	8	0.04	8.43	25	18.2				27
28	0.055	8	0.04	7.84	25	16.5				28
29	0.058	8	0.04	7.21	24	15.0				29
30	0.058	8	0.04	6.24 B	29	15.8				30
31				5.63 B	29	14.1				31
TOTAL	3.425		2.58	75.102		183.84				TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

ROSEAU RIVER AT GARDENTON - STATION NO. 05OD004

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
FEB 28	11:10	0.5	0.350 E	41	9.0												456				DH48
MAR 27	16:05		2.49 W	15	--- X												283				DIP
APR 03	14:00	3.0	24.3 W	103	9.0												197				DH59
APR 04	10:00	3.0	37.5	172	9.0																DH59
APR 25	09:15	11.0	10.4	7	9.0												285				DH59
APR 26	09:00	10.0	5.74	7	9.0																DH59
APR 27	18:00	9.0	5.43	12	9.0																DH59
APR 30	11:00	5.0	5.23	12	9.0																DH59
MAY 01	15:00	5.0	5.49	10	9.0												292				DH59
MAY 01	18:00	5.0	9.60	15	9.0																DH59
MAY 03	18:00	11.0	11.0	15	9.0												284				DH59
MAY 08	20:00	12.0	9.43	5	9.0																DH59
MAY 08	20:00	9.0	7.58	5	9.0																DH59
MAY 09	20:00	12.0	7.55	5	9.0												285				DH59
MAY 10	15:30	14.0	7.52	11	9.0																DH59
MAY 12	17:00	13.0	7.71	11	9.0																DH59
MAY 13	15:30	15.0	5.15	9	9.0																DH59
MAY 15	15:00	15.0	5.17	6	9.0												287				DH59
MAY 16	20:00	17.0	4.82	5	9.0																DH59
MAY 21	16:00	15.0	4.34	7	9.0												276				DH59
MAY 25	19:00	14.0	3.14	7	9.0																DH59
MAY 28	11:00	15.0	2.85	5	9.0												297				DH59
MAY 30	18:00	20.0	2.45	5	9.0																DH59
JUN 02	20:00	19.0	1.80	3	9.0												307				DH59
JUN 07	09:00	17.0	2.50	5	9.0																DH59
JUN 12	21:00	17.0	25.1	54	9.0												305				DH59
JUN 15	19:45	18.0	26.2	40	9.0																DH59
JUN 16	10:30	18.0	29.1	39	9.0												307				DH59
JUN 18	20:00	22.0	29.4	30	9.0																DH59
JUN 19	15:15	20.0	2.41	32	5.0 M												313				DH59
JUN 19	15:25	20.0	5.71	34	12.0 M												309				DH59
JUN 19	15:35	20.0	7.10	32	15.5 M												303				DH59
JUN 19	15:40	20.0	11.1	25	21.0 M												306				DH59
JUN 19	15:50	20.0	2.34	33	27.0 M												310				DH59
JUN 19	16:00	20.0	29.4	45	9.0												305				DH59
JUN 22	20:30	23.0	26.1	26	9.0												289				DH59
JUN 25	21:00	23.0	25.2	24	9.0																DH59
JUN 26	09:00	21.0	24.5	22	9.0																DH59
JUN 30	21:00	24.0	15.9	23	9.0												306				DH59
JUL 05	20:30	20.0	11.5	22	9.0												309				DH59
AUG 08	09:00	16.0	1.33	12	9.0												279				DH59
AUG 21	16:15	20.0	0.451	5	4.5 X												303				DH59
AUG 21	16:30	20.0	0.452	5	4.3 X												302				DH59
AUG 21	16:45	20.0	0.452	10	9.0												302				DH59
AUG 21	17:00	20.0	0.453	7	11.5 X												295				DH59
AUG 21	17:10	20.0	0.453	7	15.3 X												299				DH59
AUG 21	17:25	20.0	0.454	5	18.5 X												298				DH59
SEP 12	17:50	14.0	0.126	9	9.0																DH59

NOTE : SINGLE VERTICAL LOCATED AT 9.0 METRES

DISCHARGE SYMBOL(S): E - ESTIMATED W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL

ROSEAU RIVER AT GARDENTON - STATION NO. 05OD004

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1972	AUG-NOV	M-S	22	AUG 12	2	NOV 02	4.17	AUG 13	57.5	---	---	---
1973	APR-OCT	M-S	48	OCT 02	1	JUN 18 *	57.5	OCT 02	2 030	---	---	---
1974	APR-NOV	M-S	322	MAY 20 *	5	OCT 08	2 450	MAY 20 *	33 400 *	---	---	---
1975	APR-NOV	M-S	217	APR 22	3	SEP 19	552	MAY 05	20 500	---	---	---
1976	MAR-OCT	M-S	240	APR 05	7	AUG 11	725	APR 05	7 320	29.5	29.5	---
1977	MAR-OCT	M-S	226	MAY 19	2	MAY 12	42.4	MAY 31	555	3.95	16.5	76.7
1978	MAR-OCT	M-S	186	APR 18	5	OCT 05	763	APR 18	10 500	43.1	25.7	44.7
1979	MAR-OCT	M-S	197	APR 21	5	JUL 04	554	APR 21	13 700	56.0	33.2	33.5
1980	MAR-OCT	M-S	122	APR 13	5	OCT 20	314	APR 14	3 100	5.55	26.3	35.1
1981	MAR-OCT	M-S	31	JUN 16	5	MAR 25	45.7	JUL 06	1 540	5.27	24.6	38.2
1982	MAR-OCT	M-S	73	APR 17	5	JUN 27	250	APR 15	7 020	26.7	25.2	29.5
1983	MAR-OCT	M-S	57	APR 06	4	JUN 11	390	APR 06	5 560	26.0	25.5	25.5
1984	FEB-SEP	M-S	172	APR 04	3	JUN 02	554	APR 04	7 230	29.5	26.0	22.2

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05DD001

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 11 53 N LONG 97 03 15 W
DRAINAGE AREA: 5 200 km²
TYPE OF FLOW: NATURAL
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 13 279.59 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

	JAN			FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	1.12 B	7	0.68	0.078 B	5	0.03	0.588 B	5	0.24	1
2	1.15 B	7	0.70	0.058 B	4	0.02	0.526 B	5	0.23	2
3	1.08 B	8	0.75	0.040 B	3	0.01	0.442 B	5	0.19	3
4	1.02 B	8	0.71	0.021 B	2	0	0.407 B	5	0.16	4
5	1.03 B	8	0.71	0.003 B	1	0	0.473 B	5	0.20	5
6	1.03 B	8	0.71	0 B	0	0	0.513 B	5	0.22	6
7	1.06 B	8	0.73	0 B	0	0	0.495 B	5	0.21	7
8	0.972 B	8	0.67	0 B	0	0	0.485 B	5	0.21	8
9	0.874 B	8	0.58	0 B	0	0	0.436 B	5	0.19	9
10	0.805 B	9	0.63	0 B	0	0	0.384 B	5	0.17	10
11	0.752 B	9	0.58	0 B	0	0	0.346 B	5	0.15	11
12	0.720 B	10	0.62	0 B	0	0	0.312 B	5	0.13	12
13	0.695 B	10	0.60	0.289 B	2	0.05	0.276 B	5	0.12	13
14	0.681 B	10	0.59	0.746 B	5	0.32	0.246 B	5	0.11	14
15	0.622 B	10	0.54	0.752 B	5	0.32	0.214 B	5	0.09	15
16	0.576 B	10	0.50	0.766 B	5	0.33	0.181 B	5	0.08	16
17	0.533 B	10	0.46	0.785 B	5	0.40	0.152 B	5	0.07	17
18	0.481 B	11	0.46	0.788 B	6	0.39	0.123 B	5	0.05	18
19	0.437 B	11	0.42	0.783 B	7	0.47	0.096 B	4	0.03	19
20	0.400 B	11	0.38	0.644 B	9	0.56	0.078 B	4	0.03	20
21	0.364 B	11	0.35	0.963 B	10	0.83	0.057 B	4	0.02	21
22	0.338 B	12	0.35	1.16 B	12	1.20	0.045 B	4	0.02	22
23	0.307 B	12 S	0.32	1.29 B	13	1.45	0.046 B	4	0.02	23
24	0.283 B	12	0.29	1.27 B	14	1.54	0.437 B	5	0.19	24
25	0.254 B	11	0.24	1.05 B	12	1.10	0.943 B	8	0.85	25
26	0.224 B	10	0.18	0.852 B	10	0.74	1.50 B	10	1.30	26
27	0.193 B	9	0.15	0.712 B	8	0.49	3.66 B	12 S	3.79	27
28	0.167 B	8	0.12	0.602 B	6 S	0.31	8.78 B	16	12.1	28
29	0.140 B	7	0.08	0.588 B	6	0.30	8.28 B	24	17.2	29
30	0.112 B	6	0.06				9.94 B	33	28.3	30
31	0.095 B	6	0.05				13.2 B	40	45.8	31
TOTAL	18.518		14.32	14.378		10.96	53.837		112.09	TOTAL

	APR			MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	15.1 B	43	56.1	10.3	21 S	18.7	2.84	14	3.44	1
2	15.4 B	44 S	62.3	11.5	28 S	27.8	2.69	12 S	2.79	2
3	15.2 B	55 S	81.2	13.1	35 S	39.5	2.36	11	2.24	3
4	32.1 B	82 S	255	13.1	27 S	30.6	2.02	9 S	1.57	4
5	56.1 B	200 S	988	12.9	26 S	31.2	1.99	9 S	1.55	5
6	47.7	183 S	754	12.0	24	24.9	2.28	42 S	8.20	6
7	38.6	172 S	544	11.4	20 S	19.7	3.14	105 S	28.5	7
8	35.2	147 S	447	10.5	16	14.5	3.62	63	19.7	8
9	34.6	127 S	382	9.57	16 S	13.2	8.98	152 S	118	9
10	34.6	126 S	377	9.44	26 S	21.2	14.2	92	113	10
11	34.5	126 S	376	9.17	32	25.4	18.9	71 S	116	11
12	35.3	127 S	386	9.10	33 S	25.8	22.7	101	198	12
13	34.8	108 S	316	9.86	30	25.1	25.2	93 S	202	13
14	32.9	103 S	293	9.93	24 S	20.6	26.7	87 S	201	14
15	31.1	82 S	220	9.22	19 S	15.1	27.6	85 S	203	15
16	29.7	76 S	195	8.48	18 S	13.2	28.5	80 S	197	16
17	28.2	68 S	165	7.85	16 S	12.2	29.5	84 S	214	17
18	26.1	68 S	156	7.03	17	10.3	30.1	82 S	213	18
19	24.0	60 S	124	6.24	17	9.17	30.0	71 S	184	19
20	22.0	48	87.4	5.01	16 S	8.31	29.7	75 S	192	20
21	20.0	38	67.4	5.02	15 S	8.32	29.7	75 S	192	21
22	18.3	39	61.3	5.84	15 S	7.31	29.5	74 S	189	22
23	16.6	44	62.7	5.10	15	6.61	29.1	69 S	173	23
24	15.1	35 S	45.7	4.70	15 S	6.08	28.5	74 S	182	24
25	13.7	32 S	37.9	4.38	14 S	5.27	27.7	75	179	25
26	12.4	35 S	40.7	4.13	11 S	3.83	27.1	71 S	166	26
27	11.5	26 S	27.8	4.05	11	3.85	26.8	63 S	146	27
28	11.0	27 S	26.7	3.75	11 S	3.55	24.9	59 S	127	28
29	9.68	16 S	16.1	3.63	12	3.76	22.5	53 S	103	29
30	9.61	15	12.5	3.49	12 S	3.62	20.1	52 S	90.3	30
31				3.16	14 S	3.82				31
TOTAL	784.00		6 653.0	244.53		482.82	578.01		3 766.29	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05OD001

SUSPENDED SEDIMENT FOR 1984

	JUL			AUG			SEP			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	18.8	48 S	78.0	1.76	18	2.74	1.15	18 S	1.59	1
2	18.1	48 S	76.8	1.72	17	2.53	1.27	18	1.98	2
3	17.5	52 S	78.8	1.61	18	2.23	1.61	20	2.44	3
4	16.4	48 S	68.0	1.49	18	1.83	1.29	18 S	2.01	4
5	14.8	51 S	65.2	1.37	14	1.66	1.20	19	1.97	5
6	13.0	42 S	47.2	1.73	25	3.74	1.02 E	24	2.12	6
7	10.9	41 S	38.8	1.79	14 S	2.17	0.826 E	31	2.22	7
8	9.05	35 S	27.4	1.61	18 S	2.81	0.713 E	35 S	2.16	8
9	7.91	38 S	26.0	1.94	18	3.02	0.524 E	32	1.45	9
10	7.93	42 S	28.8	1.73	13 S	1.94	0.371 E	29	0.93	10
11	7.86	36 S	24.4	1.57	13	1.76	0.275 E	26	0.62	11
12	7.95	34 S	23.4	1.43	13	1.61	0.156 E	23 S	0.31	12
13	7.97	35 S	24.1	1.33	12 S	1.38	0.078 E	19 S	0.13	13
14	8.05	44 S	30.6	1.22	12	1.26	0.089 E	15	0.12	14
15	7.57	37 S	24.2	1.20	12 S	1.24	0.104 E	16	0.16	15
16	9.17	38 S	30.1	1.10	11	1.05	0.417 E	22	0.78	16
17	10.1	40 S	34.9	1.08	9	0.84	0.805 E	24 S	1.67	17
18	10.3	43 S	38.3	1.02	8 S	0.71	1.38 E	22	2.62	18
19	9.56	37 S	30.6	1.04	9	0.81	1.76 E	21	3.19	19
20	8.24	34 S	24.2	1.11	12 S	1.15	1.84 E	19 S	3.16	20
21	6.91	30 S	17.9	1.18	14 S	1.43	1.93 E	18	3.00	21
22	5.77	31 S	15.5	1.11	9 S	0.90	1.85 E	17	2.72	22
23	4.80	29 S	12.0	1.14	7	0.69	1.76 E	17	2.59	23
24	3.94	25 S	8.51	1.15	8	0.89	1.62 E	18	2.52	24
25	3.30	20 S	5.70	1.21	10	1.05	1.55 E	21	2.81	25
26	2.88	19	4.73	1.25	10 S	1.08	1.52 E	24	3.15	26
27	2.48	21	4.50	1.28	9	1.00	1.48 E	26	3.32	27
28	2.18	21 S	3.88	1.43	9	1.11	1.42 E	27	3.31	28
29	1.95	20	3.37	1.20	11 S	1.14	1.39 E	29	3.48	29
30	1.89	20	3.27	1.06	11	1.01	1.35 E	30	3.50	30
31	1.83	19	3.00	1.12	13	1.26				31
TOTAL	259.11		901.84	42.23		48.14	32.852		52.08	TOTAL

	OCT			NOV			DEC			
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	1.31 E	30 S	3.40	8.24 B	49	34.9	1.81 B	15	2.08	1
2	1.28 E	27	2.99	6.71 B	33	19.1	1.55 B	13	1.74	2
3	1.20 E	23	2.38	5.33 B	46	21.2	1.47 B	13	1.65	3
4	1.10 E	17 S	1.62	9.38 B	75	80.8	1.52 B	13	1.71	4
5	1.06 E	15	1.37	8.58 B	64	36.4	1.49 B	11	1.42	5
6	1.01 E	14	1.22	5.25 B	61	27.7	1.36 B	11	1.28	6
7	0.940 E	13	1.06	4.62 B	57 S	22.8	1.22 B	10	1.05	7
8	0.888 E	12 S	0.92	4.36 B	54	20.3	1.12 B	9	0.87	8
9	0.781 E	12	0.82	3.61 B	52	16.2	1.00 B	8	0.69	9
10	0.575 E	11	0.55	3.69 B	51	15.4	0.907 B	8	0.63	10
11	0.475	11	0.45	3.12 B	49	13.2	0.805 B	7	0.49	11
12	0.688	10	0.60	3.25 B	46	12.6	0.704 B	7	0.43	12
13	0.731	10	0.63	3.15 B	43	11.7	0.616 B	6 S	0.32	13
14	0.705	12 S	0.73	2.94 B	39	9.91	0.546 B	5	0.24	14
15	0.881	20	1.71	2.74 B	37	8.76	0.505 B	5	0.26	15
16	1.45	18	2.26	2.22 B	34	6.52	0.615 B	7	0.37	16
17	1.36	9	1.05	2.15 B	32	5.94	0.671 B	7	0.41	17
18	1.26	9 S	0.98	2.04 B	29	5.11	0.679 B	8	0.47	18
19	1.35	8	0.93	2.49 B	28	6.02	0.683 B	8	0.47	19
20	2.01	12	2.06	2.41 B	27	5.82	0.682 B	8	0.47	20
21	2.16	10	1.87	2.20 B	24	4.56	0.616 B	7	0.37	21
22	1.89	9 S	1.55	2.04 B	22	3.88	0.542 B	7	0.33	22
23	2.98	10	2.57	1.89 B	21	3.43	0.482 B	7	0.28	23
24	6.52	20	11.3	1.74 B	20	3.01	0.436 B	8	0.23	24
25	8.12	42	29.5	1.67 B	17	2.46	0.379 B	8	0.20	25
26	9.07	50 S	39.2	1.71 B	18	2.38	0.342 B	8	0.18	26
27	9.25	44	35.2	1.70 B	15	2.20	0.330 B	8	0.17	27
28	8.92	42 S	32.4	1.67 B	18	2.17	0.348 B	8	0.18	28
29	7.91	40	27.3	1.61 B	16	2.08	0.370 B	8	0.19	29
30	7.52 B	40	26.0	1.55 B	16	2.14	0.403 B	8	0.21	30
31	8.17 B	54 S	38.1				0.434 B	8	0.22	31
TOTAL	93.794		272.75	101.75		389.17	24.437		19.68	TOTAL

B - ICE CONDITIONS E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05OD001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JAN 23	15:20	0.5	0.307 W	12	11.0 X												467				DH48
FEB 28	10:10	0.5	0.602 W	6	9.0 X												499				DH48
MAR 27	13:15	0.5	3.86 W	12	--- X												324				DIP
APR 02	09:00	-1.0	16.4 W	44	65.0												161				DH59
APR 03	09:30	-1.0	19.2 W	45	65.0																DH59
APR 03	19:00	-1.0	18.2 W	72	65.0																DH59
APR 04	11:30	2.0	32.1 W	88	65.0																DH59
APR 05	08:45	0.0	56.1 W	201	65.0	21	31	59	86	76	84	93	99	100			191	16	52	31	DH59
APR 06	09:45	3.0	48.0	174	65.0																DH59
APR 06	17:15	6.0	41.5	195	65.0																DH59
APR 07	09:00	6.0	38.9	176	65.0																DH59
APR 07	16:15	7.0	36.0	165	65.0												204				DH59
APR 08	09:00	7.0	36.3	145	65.0																DH59
APR 08	16:15	7.0	35.1	147	65.0												195				DH59
APR 09	09:00	6.0	34.8	125	65.0																DH59
APR 10	09:30	7.0	34.6	126	65.0																DH59
APR 11	09:15	6.0	34.5	126	65.0																DH59
APR 12	08:45	6.0	35.1	129	65.0																DH59
APR 13	09:45	6.0	35.0	103	65.0																DH59
APR 14	09:15	6.0	33.1	106	65.0																DH59
APR 15	09:00	6.0	31.2	82	65.0																DH59
APR 16	09:15	7.0	29.7	74	65.0																DH59
APR 17	09:45	8.0	28.4	69	65.0																DH59
APR 18	08:45	8.0	26.4	69	65.0																DH59
APR 19	09:00	9.0	24.3	61	65.0												239				DH59
APR 24	09:30	12.0	15.3	39	65.0																DH59
APR 24	16:45	13.0	14.4	31	65.0																DH59
APR 25	09:15	10.0	13.6	30	65.0												243				DH59
APR 26	09:30	10.0	12.5	40	65.0																DH59
APR 27	09:45	8.0	11.4	27	65.0																DH59
APR 28	11:15	6.0	11.0	26	65.0																DH59
APR 29	09:15	5.0	9.76	18	65.0																DH59
MAY 01	09:30	5.0	10.3	21	65.0												268				DH59
MAY 02	09:00	6.0	11.3	24	65.0																DH59
MAY 02	11:00	7.0	11.5	29	65.0																DH59
MAY 03	08:45	7.0	13.2	39	65.0																DH59
MAY 04	09:30	8.0	13.2	28	65.0																DH59
MAY 05	10:30	9.0	13.0	29	65.0												264				DH59
MAY 06	14:15	10.0	12.0	52	65.0																DH59
MAY 07	09:00	9.0	11.4	20	65.0																DH59
MAY 09	09:15	8.0	9.80	18	65.0																DH59
MAY 10	09:00	10.0	9.50	25	65.0												267				DH59
MAY 11	09:30	10.0	9.21	510 C	65.0																DH59
MAY 12	09:30	9.0	9.04	33	65.0																DH59
MAY 14	08:45	11.0	10.0	25	65.0																DH59
MAY 15	08:30	14.0	9.31	19	65.0																DH59
MAY 16	08:30	12.0	8.51	18	65.0												279				DH59
MAY 17	09:30	15.0	7.93	18	65.0																DH59
MAY 20	09:45	13.0	5.97	16	65.0																DH59
MAY 21	10:15	14.0	5.10	16	65.0																DH59
MAY 22	10:00	13.0	5.72	16	65.0																DH59
MAY 24	08:45	14.0	4.71	15	65.0																DH59
MAY 25	10:00	12.0	4.36	16	65.0												299				DH59
MAY 26	09:00	12.0	4.05	11	65.0																DH59
MAY 28	09:00	13.0	3.74	11	65.0																DH59
MAY 30	09:15	15.0	3.49	12	65.0																DH59
MAY 31	08:45	17.0	3.16	14	65.0																DH59
JUN 02	10:15	15.0	2.72	12	65.0																DH59
JUN 04	10:15	16.0	2.00	9	65.0																DH59
JUN 05	09:15	15.0	1.89	9	65.0												311				DH59
JUN 06	09:15	15.0	1.88	8	65.0																DH59
JUN 07	08:45	18.0	3.08	139	65.0																DH59
JUN 07	13:00	18.0	2.98	82	65.0																DH59
JUN 09	09:45	14.0	9.21	158	65.0																DH59
JUN 11	08:45	15.0	18.4	87	65.0																DH59
JUN 13	08:30	15.0	24.9	89	65.0												311				DH59
JUN 13	17:00	17.0	25.7	86	65.0																DH59
JUN 14	08:45	16.0	26.5	86	65.0																DH59
JUN 15	09:30	17.0	27.4	86	65.0																DH59
JUN 15	15:18	17.0	1.86	71	6.0 M												315				DH59
JUN 15	15:26	17.0	7.03	74	11.0 M												312				DH59
JUN 15	15:35	17.0	27.7	77	65.0												307				DH59
JUN 15	15:43	17.0	6.84	74	16.0 M												307				DH59
JUN 15	15:52	17.0	5.92	82	21.0 M												310				DH59
JUN 15	18:00	17.0	5.44	105	26.0 M												307				DH59
JUN 16	08:00	17.0	26.3	82	65.0																DH59
JUN 16	17:45	19.0	28.5	75	65.0																DH59
JUN 17	10:00	18.0	29.6	87	65.0																DH59
JUN 17	16:00	20.0	29.7	85	65.0																DH59
JUN 18	08:45	19.0	30.2	83	65.0																DH59
JUN 18	19:30	20.0	30.1	82	65.0												308				DH59
JUN 19	10:00	19.0	30.0	71	65.0																DH59
JUN 20	08:45	19.0	29.7	71	65.0																DH59
JUN 20	15:30	22.0	29.8	79	65.0																DH59
JUN 21	09:00	21.0	28.7	75	65.0																DH59
JUN 22	10:00	21.0	29.5	75	65.0																DH59
JUN 23	08:45	20.0	29.2	71	65.0																DH59
JUN 23	15:30	20.0	29.0	66	65.0																DH59
JUN 24	09:45	18.0	28.5	74	65.0																DH59
JUN 25	08:20	18.0	27.9	260	65.0												316				DH59
JUN 25	10:00	20.0	27.0	67	65.0																DH59
JUN 25	18:45	20.0	27.1	78	65.0																DH59
JUN 27	08:30	19.0	27.0	63	65.0																DH59
JUN 28	09:45	20.0	25.1	59	65.0																DH59
JUN 29	09:30	20.0	22.6	53	65.0																DH59
JUN 30	09:00	21.0	20.4	52	65.0																DH59
JUL 01	10:20	21.0	18.9	48	65.0																DH59
JUL 02	10:45	22.0	18.2	49	65.0												332				DH59
JUL 03	09:45	22.0	17.6	52	65.0																DH59
JUL 04	09:15	21.0	16.6	48	65.0																DH59
JUL 05	08:45	18.0	15.1	52	65.0																DH59
JUL 06	09:45	18.0	13.2	42	65.0																DH59
JUL 07	09:45	18.0	11.2	42	65.0																DH59

NOTE : SINGLE VERTICAL LOCATED AT 65.0 METRES

DISCHARGE SYMBOL(S): W - DAILY MEAN; ICE CONDITIONS
CONCENTRATION SYMBOL(S): C - COARSE MATERIAL PRESENT
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05OD001 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JUL 08	09:30	18.0	9.26	38	85.0																
JUL 09	09:30	21.0	7.87	37	85.0																DH59
JUL 10	09:45	22.0	7.79	44	85.0												328				DH59
JUL 11	08:45	22.0	7.90	38	85.0																DH59
JUL 12	08:48	22.0	7.94	34	85.0																DH59
JUL 13	09:15	23.0	8.18	34	85.0																DH59
JUL 14	08:15	22.0	8.51	45	85.0																DH59
JUL 15	09:15	21.0	7.29	37	85.0																DH59
JUL 16	08:45	21.0	9.05	38	85.0																DH59
JUL 17	08:15	19.0	10.0	40	85.0												304				DH59
JUL 18	09:00	20.0	10.4	43	85.0																DH59
JUL 19	08:30	20.0	9.78	38	85.0																DH59
JUL 20	08:45	21.0	8.43	34	85.0																DH59
JUL 21	11:10	22.0	6.95	39	85.0																DH59
JUL 22	09:00	23.0	5.69	30	85.0																DH59
JUL 23	09:20	22.0	4.82	29	85.0																DH59
JUL 24	08:45	21.0	4.06	26	85.0												321				DH59
JUL 25	09:00	21.0	3.37	20	85.0																DH59
JUL 28	10:45	22.0	2.19	21	85.0																DH59
AUG 07	15:30	26.0	1.70	12	85.0												321				DH59
AUG 08	09:20	22.0	1.75	18	85.0												283				DH59
AUG 10	09:15	16.0	1.73	13	85.0																DH59
AUG 13	09:15	22.0	1.32	12	85.0																DH59
AUG 15	09:10	21.0	1.21	12	85.0												294				DH59
AUG 18	09:30	19.0	0.955	8	85.0																DH59
AUG 20	08:45	19.0	1.04	12	85.0												698				DH59
AUG 21	13:30	21.0	1.17	11	4.7 X																DH59
AUG 21	13:39	21.0	1.18	7	7.4 X																DH59
AUG 21	13:48	21.0	1.18	26	85.0												291				DH48
AUG 21	13:57	21.0	1.18	11	10.1 X												280				DH48
AUG 21	14:06	21.0	1.18	21	12.8 X												279				DH48
AUG 21	14:15	21.0	1.18	12	15.5 X												285				DH48
AUG 22	09:15	15.0	1.14	8	85.0												285				DH48
AUG 26	09:00	20.0	1.21	10	85.0												276				DH48
AUG 29	08:45	16.0	1.21	11	85.0																DH59
SEP 01	10:15	14.0	1.12	15	85.0												282				DH59
SEP 04	09:15	14.0	1.28	18	85.0												272				DH59
SEP 08	09:50	14.0	0.713 Y	36	85.0												280				DH59
SEP 12	09:45	12.0	0.158 Y	23	85.0												286				DH59
SEP 13	10:15	14.0	0.078 Y	19	85.0												302				DH59
SEP 17	08:30	11.0	0.605 Y	24	85.0												309				DH59
SEP 20	09:30	12.0	1.84 Y	19	85.0																DH59
OCT 01	09:45	10.0	1.31 Y	30	85.0												330				DH59
OCT 04	09:45	9.0	1.10 Y	18	85.0																DH59
OCT 08	09:15	10.0	0.888 Y	12	85.0												339				DH59
OCT 14	09:30	13.0	0.690	10	85.0												341				DH59
OCT 18	09:00	0.5	1.25	9	85.0												342				DH59
OCT 22	08:45	0.3	2.01	10	85.0												338				DH59
OCT 26	09:15	0.3	9.04	51	85.0												289				DH59
OCT 28	12:00	0.0	8.95	42	85.0												277				DH59
OCT 31	08:45	-1.0	6.17 B	69	85.0												428				DH59
NOV 07	11:05	0.5	4.62 W	57	7.5 X																DH59
DEC 13	13:15	0.5	0.616 W	6	1.0 X																DH59
																	254				DH48
																	384				DH48

NOTE : SINGLE VERTICAL LOCATED AT 85.0 METRES

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS Y - DAILY MEAN; ESTIMATED
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

ROSEAU RIVER NEAR DOMINION CITY - STATION NO. 05OD001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1972	AUG-NOV	M-S	103	SEP 06	6	OCT 27 *	8.59	AUG 14	223	---	---	---
1973	APR-OCT	M-S	116	OCT 10	10	APR 23	229	SEP 30	3 980	---	---	---
1974	APR-DEC	M-S	326	APR 18	5	OCT 30	1 950	APR 18	45 500	---	---	---
1975	APR-OCT	M-S	314	APR 23	12	OCT 03	1 850	MAY 08	49 100 *	---	---	---
1976	MAR-OCT	M-S	514	APR 07 *	15	OCT 09	1 870	APR 07	13 400	54.8	54.8	---
1977	MAR-OCT	M-S	189	APR 11	10	MAR 18	194	APR 12	1 610	5.57	30.7	78.6
1978	MAR-OCT	M-S	331	APR 18	5	OCT 14	1 410	APR 16	25 500	104	55.1	51.0
1979	JAN-DEC	M-C	297	APR 20	10	OCT 29	1 840	APR 21	37 100	151	79.1	39.4
1980	JAN-DEC	M-C	289	APR 14	8	OCT 28	986	APR 14	5 980	24.2	68.1	38.9
1981	JAN-DEC	M-C	58	JUL 20	6	OCT 02	75.5	JUL 05	3 610	13.5	59.0	39.8
1982	JAN-DEC	M-C	396	OCT 09	5	MAR 11	722	APR 16	21 700	85.4	62.6	32.2
1983	JAN-DEC	M-C	350	APR 09	5	DEC 05	2 820	APR 08 *	24 400	98.7	67.3	26.6
1984	JAN-DEC	M-C	510	MAY 11	5	FEB 28	969	APR 05	12 700	50.1	65.4	24.5

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

SASKATCHEWAN RIVER AT THE PAS - STATION NO. 05KJ001

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 53 50 30 N LONG 101 11 10 W
DRAINAGE AREA: 347 000 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 1 229 924 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

	JAN			FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	281 B	14	340	359 B	18	558	363 B	12	376	1
2	285 B	16	394	352 B	18	563	369 B	13	414	2
3	290 B	17	426	363 B	17	533	375 B	12	389	3
4	295 B	16	408	361 B	18	561	375 B	11	356	4
5	300 B	17	441	359 B	17	527	365 B	12	378	5
6	304 B	17	447	359 B	18	558	355 B	12	368	6
7	312 B	17	458	367 B	19	602	349 B	11	332	7
8	318 B	19	522	379 B	18	589	346 B	11 S	329	8
9	321 B	19	527	386 B	18 S	600	346 B	11	329	9
10	323 B	19	530	388 B	17	570	347 B	12	360	10
11	324 B	19 S	532	390 B	17	573	349 B	11	332	11
12	324 B	19	532	389 B	16	538	350 B	11	333	12
13	327 B	19	537	388 B	15	503	352 B	10	304	13
14	329 B	19	540	387 B	16	535	355 B	11	337	14
15	330 B	19	542	386 B	15	500	356 B	11	338	15
16	328 B	19	536	387 B	14	468	355 B	10	307	16
17	328 B	19	536	388 B	14	469	353 B	10	305	17
18	327 B	18	509	387 B	14	468	353 B	11	335	18
19	324 B	17	476	385 B	13	432	353 B	11	335	19
20	325 B	17	477	384 B	13	431	349 B	9	271	20
21	326 B	18	507	386 B	12 S	400	340 B	8	235	21
22	325 B	16	448	385 B	12	398	335 B	9	260	22
23	325 B	16	449	383 B	12	397	337 B	9 S	262	23
24	327 B	15	424	375 B	12	388	341 B	8	236	24
25	331 B	15 S	429	365 B	12	378	348 B	10	301	25
26	334 B	15	462	358 B	12	371	350 B	10	302	26
27	336 B	15	464	353 B	12	366	346 B	10	299	27
28	338 B	15	467	353 B	12	366	345 B	10	298	28
29	342 B	17	502	359 B	13	403	347 B	10	300	29
30	350 B	15	484				351 B	11	334	30
31	355 B	17	521				348 B	10	301	31
TOTAL	9 984		14 872	10 871		14 047	10 803		9 956	TOTAL

	APR			MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	343 B	11	326	814	156	11 000	788	106 S	6 940	1
2	344 B	10	297	769	115 S	7 840	715	112 S	6 920	2
3	362 B	11	344	776	94 S	6 300	747	126 S	8 130	3
4	389 B	10	336	760	83 S	5 450	742	131 S	8 400	4
5	421 B	12 S	436	759	73	4 780	717	120 S	7 430	5
6	455 B	19	767	746	71 S	4 580	710	112 S	6 870	6
7	506 B	29	1 270	700	81 S	4 900	739	117 S	7 470	7
8	565 B	38	1 860	647	94 S	5 420	830	135 S	9 880	8
9	621 B	47	2 520	641	93	5 150	776	143	9 590	9
10	674 B	57	3 320	643	87 S	4 630	885	137	8 240	10
11	748 B	68	4 390	670	85	4 880	834	127 S	6 980	11
12	850 B	78	5 730	838	91	5 020	845	116 S	6 430	12
13	946 B	88 S	7 190	801	101 S	5 240	872	130 S	7 550	13
14	1 040 B	106	9 520	574	106 S	5 260	884	138 S	7 800	14
15	1 090 B	146	13 700	571	89	4 880	835	124 S	6 800	15
16	1 130 B	214	20 900	575	82 S	4 070	630	107 S	5 820	16
17	1 180 B	281 S	28 200	594	74 S	4 000	644	103 S	5 730	17
18	1 120	222 S	21 500	552 A	85 S	4 050	645	100 S	5 570	18
19	1 090	185 S	17 400	577 A	95 S	4 740	622	103 S	5 540	19
20	1 110	176 S	16 900	601 A	205 S	10 600	617	102	5 440	20
21	1 120	169 S	16 400	632 A	205 S	11 200	631	99 S	5 400	21
22	1 070	169 S	15 800	626 E	157 S	8 490	657	106 S	6 020	22
23	1 040	160 S	14 400	631 E	186 S	10 200	679	125 S	7 330	23
24	1 020	144 S	12 700	649 A	177 S	9 830	706	112	6 820	24
25	1 010	124 S	10 800	663	151 S	8 650	698	104 S	6 270	25
26	1 030	117 S	10 400	656	142 S	8 050	682	129 S	7 800	26
27	1 010	165 S	14 400	678	125 S	7 320	677	124 S	7 490	27
28	1 020	203	17 900	702	84 S	5 090	688	108	6 430	28
29	991	217 S	18 800	704	92 S	5 600	702	103 S	6 250	29
30	872	204 S	15 400	729	99 S	6 240	713	116 S	7 150	30
31				771	106 S	6 980				31
TOTAL	25 147		302 488	20 688		200 860	20 658		210 878	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

SASKATCHEWAN RIVER AT THE PAS - STATION NO. 05KJ001

SUSPENDED SEDIMENT FOR 1984

DAY	JUL DAILY DISCHARGE (m^3/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m^3/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	712	123 S	7 570	398	61	2 100	322	99	2 760	1
2	706	124 S	7 560	380	69 S	2 270	321	106	2 840	2
3	672	121 S	7 030	372	72	2 310	315	106 S	2 940	3
4	637	111 S	6 110	371	65	2 060	312	105	2 830	4
5	626	114 S	6 190	365	57 S	1 900	322	101	2 810	5
6	613	123 S	6 510	395	56	1 910	334	95 S	2 760	6
7	593	120 S	6 150	379	63 S	2 060	339 A	93	2 720	7
8	563	121	5 890	368	65	2 070	342 A	86	2 900	8
9	521	123 S	5 540	358	62	1 920	403 A	109	3 800	9
10	486	105 S	4 500	384	60 S	1 890	404 A	120 S	4 190	10
11	505	110 S	4 800	353	56	1 710	361 A	123	3 840	11
12	523	126	5 590	347	54 S	1 620	357 A	119	3 870	12
13	548	129 S	6 110	353	54	1 650	352 A	117 S	3 500	13
14	569	125	6 150	341	57	1 680	352	105	3 320	14
15	581	119	5 970	330	55 S	1 650	349	100	3 020	15
16	524	114 S	5 160	340	56	1 940	342	95	2 840	16
17	483	106	4 420	332	65 S	1 850	341	89 S	2 620	17
18	471	102 S	4 180	330	66	1 880	335	81	2 340	18
19	463	104 S	4 180	333	70 S	2 010	337	77	2 240	19
20	464	111 S	4 450	329	71	2 020	346	78 S	2 330	20
21	470	115	4 670	313	70 S	1 890	372	88	2 830	21
22	459	111	4 400	331	69	1 970	434	119	4 460	22
23	430	106	3 940	343	71	2 100	500	166	7 170	23
24	432	100 S	3 730	334	78 S	2 250	396	214 S	7 320	24
25	442	95	3 670	333	64	1 840	342	196	5 780	25
26	455	97 S	3 810	334	49	1 410	345	161	4 600	26
27	465	95	3 880	313	44 S	1 180	346	145 S	4 330	27
28	463	87 S	3 480	314	43	1 170	343	137	4 080	28
29	431	74	2 760	296	51	1 300	350	128	3 870	29
30	421	67	2 440	250	58 S	1 470	388	121	3 830	30
31	413	62 S	2 210	264	69	2 030				31
TOTAL	16 153		153 080	10 583		67 350	10 700		108 800	TOTAL

DAY	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DEC DAILY DISCHARGE (m^3/s)	DEC MEAN CONCENTRATION (mg/L)	DEC DAILY LOAD (t)	DAY
1	382	113 S	3 730	350 B	55	1 650	261 B	33	764	1
2	376	112	3 640	344 B	51	1 530	260 B	34	764	2
3	377	111	3 620	339 B	45	1 320	261 B	35	789	3
4	376	112	3 640	334 B	41	1 180	260 B	34	764	4
5	381	111 S	3 650	331 B	37 S	1 060	255 B	35 S	774	5
6	383	108	3 290	327 B	36	1 020	254 B	36	790	6
7	387	104	3 210	326 B	36	1 010	253 B	37	809	7
8	388	100	3 160	324 B	36	1 060	256 B	38	840	8
9	386	95	2 970	322 B	37	1 030	263 B	39	885	9
10	382	93 S	2 830	328 B	37	1 050	267 B	40	923	10
11	385	89	2 810	327 B	38	1 070	269 B	41	953	11
12	384	85	2 820	323 B	38	1 060	268 B	42	973	12
13	406	81	2 840	319 B	39 S	1 070	265 B	44	1 010	13
14	382	77	2 540	313 B	38	1 030	263 B	45	1 050	14
15	386	74 S	2 340	307 B	38	1 010	259 B	45	1 030	15
16	414	75	2 680	291 B	38	905	252 B	47	1 020	16
17	491	60	3 380	277 B	38	852	253 B	48	1 050	17
18	411	80	3 200	266 B	34	781	261 B	48	1 100	18
19	424	102 S	3 740	261 B	34	767	268 B	48	1 130	19
20	444	109	4 180	258 B	31	683	264 B	48 S	1 120	20
21	447	116	4 480	248 B	31 S	664	259 B	49	1 100	21
22	433	115	4 300	248 B	32	666	255 B	48	1 060	22
23	414	111	3 970	252 B	32	697	255 B	48	1 100	23
24	416	105 S	3 770	255 B	32	705	274 B	47	1 120	24
25	423	88	3 580	290 B	33	741	280 B	47	1 140	25
26	381	92	3 030	282 B	33	747	282 B	47	1 180	26
27	370	84	2 880	283 B	32	727	287 B	44	1 050	27
28	370 B	76	2 430	282 B	33	747	286 B	43	1 080	28
29	368 B	69 S	2 200	282 B	33	747	285 B	43	1 080	29
30	363 B	65	2 040	283 B	34	772	286 B	41	1 010	30
31	367 B	60	1 850				287 B	40	992	31
TOTAL	12 109		88 820	8 839		26 382	8 281		30 401	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

SASKATCHEWAN RIVER AT THE PAS - STATION NO. 05KJ001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)		PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JAN 11	16:00	0.5	324	W	19	177													257				DH59
JAN 25	14:00	0.5	331	W	15	177													264				DH59
FEB 08	11:00	0.5	388	W	18	177													271				DH59
FEB 21	11:20	0.5	388		13	177													287				DH59
MAR 06	14:00	0.5	346	W	12	177													282				DH59
MAR 23	11:30	0.5	337	W	8	177													276				DH59
APR 05	10:40	0.5	421	W	10	177													271				DH59
APR 13	13:30		946	W	88	---	X																DH59
APR 17	17:30		1150	H	294	---	X																DH59
APR 18	17:30	2.0	1120	H	195	177																	DH59
APR 19	08:00	3.0	181		202	87.0	M																D49
APR 19	09:05	3.0	204		198	117	M												220				D49
APR 19	09:12	3.0	214		186	152	M												226				D49
APR 19	09:18	3.0	1050		185	177	M												226				D49
APR 19	09:21	3.0	216		172	184	M												229				D49
APR 19	09:25	3.0	225		168	223	M												225				D49
APR 21	16:15	3.0	1120	H	167	177													235				D49
APR 22	15:30	5.0	1070	H	170	177																	D49
APR 23	19:30	7.0	1040	H	155	177																	D49
APR 24	14:00	7.0	1020	H	144	177																	D49
APR 25	11:15	6.0	1010	H	125	177																	D49
APR 26	16:30	3.0	1030	H	112	177													209				D49
APR 27	16:30	3.0	1010	H	175	177																	D49
APR 29	12:40	3.0	891	H	217	177																	D49
APR 30	07:05	3.0	872	H	213	177																	D49
MAY 02	17:45	4.0	789	H	106	177																	D49
MAY 03	17:30	4.0	775	H	92	177																	D49
MAY 04	10:00	5.5	750	H	85	177													212				D49
MAY 05	17:20	3.5	746	H	71	177																	D49
MAY 07	13:15	3.5	700	H	82	177																	D49
MAY 08	19:45	4.5	657	H	97	177																	D49
MAY 10	12:50	5.0	643	H	87	177																	D49
MAY 13	18:30	7.0	601	H	105	177																	D49
MAY 14	18:15	8.5	574	H	105	177																	D49
MAY 16	09:15	8.5	575	H	83	177													210				D49
MAY 17	19:00	10.0	609		102	177																	D49
MAY 18	17:00	9.5	552	V	88	177																	D49
MAY 19	17:00	10.5	577	V	91	177																	D49
MAY 20	18:30	8.0	601	V	261	177																	D49
MAY 21	19:00	7.0	532	V	185	177																	D49
MAY 22	18:15	7.5	526	V	149	177																	D49
MAY 23	18:15	7.0	631	V	207	177													201				D49
MAY 24	14:30	7.0	649	V	159	177																	D49
MAY 25	19:30	7.0	653	H	146	177																	D49
MAY 26	19:30	8.0	656	H	140	177																	D49
MAY 27	12:15	9.5	678	H	131	177																	D49
MAY 28	17:30	9.5	702	H	75	177																	D49
MAY 29	19:00	9.5	704	H	102	177																	D49
MAY 30	16:30	12.5	729	H	84	177													210				D49
MAY 31	19:15	12.0	771	H	112	177																	D49
JUN 01	16:45	12.0	758	H	89	177																	D49
JUN 02	19:00	12.5	715	H	115	177																	D49
JUN 03	17:15	11.5	747	H	126	177																	D49
JUN 04	17:00	11.5	742	H	131	177																	D49
JUN 05	17:00	12.5	717	H	115	177																	D49
JUN 06	19:50	13.5	710	H	115	177													214				D49
JUN 07	18:45	13.0	738	H	119	177																	D49
JUN 08	18:30	13.0	830	H	129	177																	D49
JUN 11	20:45	12.0	834	H	124	177																	D49
JUN 12	20:45	13.5	842	H	116	177																	D49
JUN 13	12:00	14.5	872	H	133	177													220				D49
JUN 14	16:45	16.0	854	H	137	177																	D49
JUN 15	21:20	16.0	836	H	118	177																	D49
JUN 16	19:15	17.0	830	H	105	177																	D49
JUN 17	20:30	17.0	844	H	103	177																	D49
JUN 18	19:45	18.0	845	H	100	177																	D49
JUN 19	08:05	19.0	122		101	75.0	M												185				D49
JUN 19	08:12	19.0	133		106	123	M												204				D49
JUN 19	08:19	19.0	139		103	156	M												216				D49
JUN 19	08:25	19.0	677		98	177													226				D49
JUN 19	08:30	19.0	142		86	183	M												233				D49
JUN 19	08:35	19.0	142		84	219	M												247				D49
JUN 19	09:30	17.0	677		115	177																	D49
JUN 21	19:50	17.5	631	H	97	177																	D49
JUN 22	20:00	17.0	657	H	112	177																	D49
JUN 23	19:30	16.5	679	H	127	177																	D49
JUN 25	20:00	17.5	686	H	105	177																	D49
JUN 26	20:30	17.5	682	H	139	177													240				D49
JUN 27	13:30	18.5	677	H	135	177																	D49
JUN 29	16:30	21.0	702	H	103	177																	D49
JUN 30	15:00	22.0	713	H	117	177																	D49
JUL 01	17:30	24.5	712	H	122	177													230				D49
JUL 02	13:45	23.5	706	H	126	177													233				D49
JUL 03	20:30	18.0	672	H	119	177													229				D49
JUL 04	18:15	18.5	637	H	109	177													232				D49
JUL 05	16:30	20.5	626	H	117	177													227				D49
JUL 06	17:30	21.0	613	H	123	177													234				D49
JUL 07	16:30	21.0	593	H	119	177																	D49
JUL 09	20:00	21.5	521	H	126	177																	D49
JUL 10	19:30	22.5	496	H	97	177																	D49
JUL 11	14:30	24.5	505	H	117	177																	D49
JUL 13	16:15	22.0	548	H	129	177													242				D49
JUL 16	07:15	25.5	524	H	115	177													246				D49
JUL 18	07:40	27.5	471	H	101	177													250				D49
JUL 20	18:15	27.5	464	H	114	177													259				D49
JUL 24	08:20	21.0	457		101	177																	D49
JUL 25	19:35	28.5	455	H	98	177													225				D49
JUL 26	12:20	27.5	453	H	88	177																	D49
JUL 31	15:45	29.0	413	H	80	177																	D49
AUG 02	07:30	24.5	403		86	177																	D49
AUG 05	07:30	22.0	385	H	86	177													239				D49
AUG 07	07:15	22.5	379	H	82	177																	D49
AUG 10	13:50	23.0	361		80	177																	D49

NOTE : SINGLE VERTICAL LOCATED AT 177 METRES

DISCHARGE SYMBOL(S): H - DAILY MEAN; V - DAILY MEAN; MANUAL GAUGE; W - DAILY MEAN; ICE CONDITIONS; Y - DAILY MEAN; ESTIMATES

VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL; M - A SEDIMENT MEASUREMENT VERTICAL

CONTINUED

SASKATCHEWAN RIVER AT THE PAS - STATION NO. 05KJ001 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)		INSTANT. CONCENT. (mg/L)		SINGLE SAMPLING VERTICAL (m)		PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
AUG 12	18:45	26.0	347	H	56		177																	D49
AUG 15	12:30	18.5	330	H	65		177													232				D49
AUG 17	18:30	24.5	332	H	84		177																	D49
AUG 19	07:45	19.5	333	H	69		177																	D49
AUG 21	15:35	21.0	313	H	70		177													222				D49
AUG 24	19:30	22.0	334	H	81		177																	D49
AUG 27	18:45	26.5	313	H	44		177																	D49
AUG 30	09:10	17.0	281		65		177													232				D49
SEP 03	09:40	15.0	315	H	109		177																	D49
SEP 06	07:55	14.0	334	H	96		177																	D49
SEP 10	07:00	13.0	404	V	119		177													225				D49
SEP 12	11:55	12.0	362	V	112		177																	D49
SEP 17	07:45	12.0	341	H	81		177													215				D49
SEP 20	08:30	12.5	63.0		77		61.0	M																D49
SEP 20	08:37	12.5	77.0		77		130	M												233				D49
SEP 20	08:44	12.5	71.0		75		158	M												231				D49
SEP 20	08:52	12.5	371		76		177													238				D49
SEP 20	08:56	12.5	80.0		75		184	M												236				D49
SEP 20	09:05	12.5	80.0		75			M												234				D49
SEP 24	12:50	7.0	395	H	222		177													255				D49
SEP 27	09:55	4.0	346	H	146		177																	D49
OCT 01	12:00	5.0	382	H	111		177													220				D49
OCT 05	12:35	7.0	381	H	112		177																	D49
OCT 10	13:10	10.5	352	H	93		177													254				D49
OCT 15	10:10	10.5	390		74		177																	D49
OCT 19	14:00	3.5	424	H	103		177													234				D49
OCT 24	14:35	3.0	416	H	105		177																	D49
OCT 29	09:00	1.5	369	W	70		---	X												247				D49
NOV 05	10:15	0.5	331	W	37		---	X												238				DH59
NOV 13	10:10	0.5	318	W	39		177													255				DH59
NOV 21	10:30	0.5	248		31		177													258				DH59
DEC 05	14:05	0.5	256	W	35		177													267				DH59
DEC 20	12:40	0.5	264		45		177													258				DH59
																				268				DH59

NOTE : SINGLE VERTICAL LOCATED AT 177 METRES

DISCHARGE SYMBOL(S): H - DAILY MEAN V - DAILY MEAN, MANUAL GAUGE W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): M - A SEDIMENT MEASUREMENT VERTICAL X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

SASKATCHEWAN RIVER AT THE PAS - STATION NO. 05KJ001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1954	JUN-SEP	M-S	735	SEP 08	95	AUG 19	118 000	SEP 08	3 740 000	---	---	---
1955	MAY-AUG	M-S	1 130	MAY 05 *	60	JUL 25	183 000	MAY 01 *	3 930 000	---	---	---
1956	MAY-SEP	M-S	445	JUN 14	32	JUN 28	100 000	MAY 17	2 170 000	---	---	---
1957	MAY-AUG	M-S	585	MAY 04	43	AUG 01	128 000	MAY 01	2 850 000	---	---	---
1958	APR-OCT	M-S	715	APR 23	50	AUG 30	95 000	APR 30	4 400 000	---	---	---
1959	JUL-AUG	M-S	680	JUL 09	115	JUL 30	91 000	JUL 10	1 420 000	---	---	---
1960	MAY-AUG	M-S	505	JUN 03	55	AUG 12	92 700	MAY 01	2 560 000	---	---	---
1962	MAY-DEC	M-S	530	MAY 05	15	DEC 07	85 900	MAY 05	2 050 000	---	---	---
1963	JAN-DEC	M-C	280	APR 25	10	MAR 28	35 400	APR 25	2 340 000	5 400	5 400	---
1964	JAN-DEC	M-C	580	JUN 30	11	APR 06	78 400	JUN 30	3 280 000	8 950	7 680	16.7
1965	JAN-DEC	M-C	680	MAY 06	12	MAR 15	86 400	JUL 11	6 690 000 *	18 300	11 200	32.3
1966	JAN-DEC	M-C	260	MAY 04	10	FEB 24	34 100	MAY 04	2 080 000	5 840	8 830	29.6
1967	JAN-DEC	M-C	280	JUN 10	10	APR 11	27 100	JUN 10	1 800 000	4 370	8 730	26.7
1968	JAN-DEC	M-C	165	JUL 01	11	DEC 06	10 700	APR 30	857 000	2 340	7 870	30.1
1969	JAN-DEC	M-C	511	JUL 09	14	NOV 25	81 000	APR 23	3 850 000	7 810	7 890	25.4
1970	JAN-DEC	M-C	323	MAY 13	9	MAR 17	55 300	MAY 10	2 130 000	5 850	7 460	22.6
1971	JAN-DEC	M-C	382	APR 27	12	MAR 17	67 200	APR 27	3 020 000	5 550	7 250	20.8
1972	JAN-DEC	M-C	506	MAY 03	6	NOV 21 *	96 400	MAY 03	2 740 000	7 480	7 270	18.7
1973	JAN-DEC	B-C	282	MAY 23	12	MAR 31	25 000	MAY 22	1 880 000	5 140	7 080	17.6
1974	JAN-DEC	B-C	653	APR 29	14	DEC 23	173 000	MAY 02	8 230 000	17 100	7 910	17.8
1975	JAN-DEC	M-C	205	MAY 21	16	APR 08	27 100	APR 30	1 700 000	4 670	7 680	17.2
1976	JAN-DEC	M-C	143	AUG 30	15	FEB 25	8 590	APR 18	865 000	2 700	7 310	17.4
1977	JAN-DEC	M-C	188	MAY 07	11	APR 13	11 900	APR 22	871 000	2 380	8 980	17.6
1978	JAN-DEC	B-C	389	MAY 04	10	FEB 22	43 700	MAY 04	1 700 000	4 880	8 840	15.9
1979	JAN-DEC	B-C	417	MAY 08	6	APR 17	72 100	MAY 08	1 840 000	4 480	8 700	16.4
1980	JAN-DEC	M-C	235	APR 22	10	APR 07	21 300	APR 22	1 380 000	3 800	8 540	16.0
1981	JAN-DEC	M-C	327	OCT 01	10	DEC 20	21 500	AUG 12	1 780 000	4 800	8 450	16.4
1982	JAN-DEC	M-C	383	OCT 22	9	APR 18	25 000	APR 30	1 380 000	3 810	8 310	16.1
1983	JAN-DEC	M-C	221	MAY 12	8	DEC 06	27 400	MAY 01	1 330 000	3 640	8 180	14.8
1984	JAN-DEC	M-C	384	APR 17	9	MAR 23	38 200	APR 17	1 230 000	3 380	8 080	14.6

B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

SEINE RIVER DIVERSION NEAR ST. ADOLPHE - STATION NO. 05OE013

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY : MAR-OCT STANDARD ERROR OF MEAN %
1972	MAR-OCT #	M-MS	637	APR 17	7	MAR 31	---	---	---	---	---	---
1973	MAR-OCT	M-S	449	SEP 05	13	JUN 12	275	SEP 05	3 440	14.0	14.0	---
1974	APR-JUL	M-S	3 570	APR 18	34	JUN 17	50 000	APR 18 *	288 000 *	---	---	---
1975	MAR-SEP	B-S	3 770	APR 21 *	0	SEP 12 *	1 890	JUL 01	17 200	---	---	---
1976	MAR-APR	B-S	353	APR 21	117	APR 20	538	APR 08	4 280	---	---	---
1977	MAR-OCT	B-S	397	SEP 14	9	APR 08	28.1	SEP 13	321	1.32	7.66	82.6
1978	MAR-OCT	B-S	1 220	APR 12	14	JUL 27	4 450	APR 12	32 800	134	49.8	84.9
1979	APR-APR #	M-MS	1 230	APR 21	178	APR 26	---	---	---	---	---	---

B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

SEINE RIVER DIVERSION NEAR STE. ANNE - STATION NO. 05OH008

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY : MAR-OCT STANDARD ERROR OF MEAN %
1972	MAR-APR #	B-MS	2 480	APR 16	11	APR 03	---	---	---	---	---	---
1973	MAR-OCT	B-S	84	JUN 22	0	JUN 12 *	18.1	OCT 15	330	1.35	1.35	---
1974	MAR-OCT	B-S	827	APR 18	25	JUN 12	4 060	APR 18 *	28 400 *	116	58.7	97.7
1975	MAR-OCT	B-S	214	JUL 01	12	APR 19	302	JUL 02	1 570	6.41	41.3	90.6
1976	MAR-OCT	B-S	72	APR 07	9	MAY 03	29.2	APR 22	493	2.02	31.4	89.6
1977	MAR-OCT	B-S	8 590	JUL 30 *	19	MAR 17	0	MAR 01	---	0	26.2	90.2
1978	MAR-OCT	B-S	137	APR 15	11	MAY 21	178	APR 10	1 750	7.14	22.2	84.7
1979	MAR-OCT	B-S	101	APR 21	15	MAY 31	264	APR 20	2 200	8.99	20.3	78.6

B - BOTH AUTOMATIC AND MANUAL SAMPLING

S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

MANITOBA

SOURIS RIVER AT WAWANESA - STATION NO. 05NG001

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 35 05 N LONG 99 40 55 W
DRAINAGE AREA: 50 400 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 4 348.07 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

JAN				FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.622 B	36	1.93	0.587 B	36	1.83	1.52 B	46 S	6.04	1
2	0.624 B	35	1.89	0.884 B	42	3.14	1.58 B	46	6.28	2
3	0.696 B	34	2.04	1.14 B	44	4.33	1.64 B	46	6.52	3
4	0.835 B	33	2.38	1.00 B	44	3.80	1.65 B	46	6.60	4
5	1.10 B	32	3.04	0.820 B	44	3.36	1.49 B	47	6.05	5
6	1.23 B	31	3.28	0.869 B	46	3.45	1.47 B	47	5.97	6
7	1.11 B	31	2.97	1.10 B	46	4.55	1.58 B	46	6.97	7
8	1.13 B	29	2.63	1.12 B	49	4.74	1.90 B	46	7.88	8
9	0.867 B	29	2.17	1.23 B	49	5.21	1.93 B	47	7.84	9
10	0.916 B	29	2.30	1.24 B	50	5.36	1.85 B	47	7.55	10
11	0.950 B	29	2.38	1.10 B	50	4.75	1.94 B	46	7.71	11
12	0.984 B	28	2.33	1.25 B	50	5.40	1.91 B	46	7.59	12
13	0.761 B	27	1.78	1.36 B	50	5.86	1.70 B	46	6.76	13
14	0.637 B	26	1.43	2.07 B	57	10.2	1.66 B	46	6.60	14
15	0.595 B	24	1.23	2.95 B	58	14.8	1.67 B	46	6.93	15
16	0.528 B	23	1.05	2.03 B	53	9.30	2.23 B	49	9.44	16
17	0.450 B	21	0.82	1.81 B	50	7.82	2.80 B	49	11.0	17
18	0.438 B	21 S	0.79	1.72 B	48	7.13	2.12 B	49	8.98	18
19	0.407 B	21	0.74	1.61 B	48	6.68	1.96 B	48	8.13	19
20	0.379 B	21	0.69	1.49 B	47	6.05	1.91 B	48	7.92	20
21	0.383 B	21	0.68	1.39 B	47	5.64	2.10 B	49	8.89	21
22	0.269 B	21	0.49	1.32 B	46	5.26	3.80 B	54	17.7	22
23	0.233 B	21	0.42	1.28 B	46	5.09	13.0 B	58	65.1	23
24	0.219 B	21	0.40	1.25 B	46	4.97	13.6 B	56	66.6	24
25	0.206 B	21	0.37	1.23 B	46	4.89	13.1 B	45	50.9	25
26	0.223 B	21	0.40	1.22 B	46	4.85	10.6 B	32	29.9	26
27	0.285 B	21	0.52	1.26 B	46	5.09	8.71 B	23	17.3	27
28	0.376 B	23	0.75	1.34 B	46	5.33	8.57 B	21	17.4	28
29	0.410 B	26	0.89	1.44 B	46	5.72	10.1 B	18	15.7	29
30	0.426 B	28	1.04				8.34 B	15	10.8	30
31	0.456 B	32	1.26				10.9 B	15	15.1	31
TOTAL	18.729		45.31	36.910		163.62	140.85		484.35	TOTAL

APR				MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	8.75 B	12	9.07	3.67	13	4.35	27.4	20	47.3	1
2	7.84 B	10 S	6.81	3.32	11	3.16	28.3	22	56.2	2
3	7.91 B	15 S	10.3	3.41	10	2.95	26.7	24	55.5	3
4	8.55 B	18 S	14.0	3.67	10	3.43	26.4	23 S	55.4	4
5	9.94 B	21 S	18.0	12.5	19	20.5	27.7	22	52.7	5
6	12.2 B	31 S	32.7	22.9	32	63.3	26.9	21	48.6	6
7	13.6 B	43	51.3	23.6	31 S	63.7	27.3	23	54.3	7
8	15.1	43	56.1	23.5	29	56.9	26.1	21	47.4	8
9	10.3	29 S	25.8	23.5	27	54.8	24.9	20	43.0	9
10	9.52	20	16.5	22.9	25 S	51.4	24.3	20	42.0	10
11	8.66	20	14.6	22.4	25	48.4	23.9	20 S	41.3	11
12	7.91	20	13.7	23.2	24	48.1	23.4	20	40.4	12
13	6.86	20	11.8	24.2	24 S	50.2	21.6	19 S	35.5	13
14	5.92	20 S	10.2	24.0	24	48.8	20.0	19	32.8	14
15	5.04	18 S	7.84	23.4	24 S	48.5	18.7	18	29.1	15
16	4.63	13 S	5.20	23.1	24	47.9	16.9	17 S	24.6	16
17	5.08	11	4.83	23.1	24	47.9	15.6	17	22.9	17
18	5.82	10 S	5.03	23.5	25	50.8	14.6	16	22.7	18
19	5.60	10	4.84	25.1	25 S	55.4	13.0	20 S	22.5	19
20	5.48	10 S	4.73	25.5	26	57.3	11.5	20	18.9	20
21	5.79	10	5.00	24.4	33	68.5	10.5	20 S	18.3	21
22	5.56	10	4.82	22.0	20	38.0	9.45	19	15.5	22
23	4.97	10	4.29	21.2	19 S	33.0	8.87	18	13.9	23
24	4.38	10	3.78	21.7	18	33.7	8.65	18	13.5	24
25	4.05	10 S	3.50	22.2	17	32.6	7.85	18	12.4	25
26	3.86	10	3.34	23.5	17	33.0	7.51	18	11.7	26
27	3.87	10	3.34	22.9	16	31.7	7.04	17	10.3	27
28	3.62	10	3.04	23.1	16	31.9	6.35	17	9.33	28
29	4.89	14	5.91	23.7	16 S	32.8	5.77	17	8.47	29
30	5.22	18	7.22	24.7	16	34.1	5.17	16	7.16	30
31				25.8	16	40.3				31
TOTAL	210.87		387.79	838.47		1 221.38	526.50		918.95	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

SOURIS RIVER AT WAWANESA - STATION NO. 05NG001

SUSPENDED SEDIMENT FOR 1984

DAY	JUL DAILY DISCHARGE (m^3/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m^3/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	4.83	19	8.58	3.19	16	4.47	1.39	12	1.56	1
2	4.43	16	6.12	3.13	15	4.33	1.41	12 S	1.46	2
3	4.13	16	5.71	3.09	15	4.27	1.46	12	1.50	3
4	4.08	17	5.95	2.95	15	4.08	1.58	13	1.77	4
5	4.27	17	6.27	2.88	15	3.95	1.53	13	1.72	5
6	4.57	18	7.11	2.71	16	3.75	1.33	13 S	1.49	6
7	4.80	18	7.46	2.86	17	4.23	1.26	13	1.42	7
8	5.03	18	7.82	2.73	16	3.77	1.32	12	1.37	8
9	4.87	17	7.15	2.59	16	3.58	1.33	12 S	1.38	9
10	4.62	18	6.39	2.47	16	3.41	1.50	12	1.56	10
11	4.42	18	6.11	2.36	16	3.28	1.55	12	1.62	11
12	4.31	16	5.96	2.23	16	3.08	2.02	13 S	2.27	12
13	4.19	17	6.15	2.14	16	2.96	2.19	11	2.18	13
14	3.99	16	5.52	2.04	16	2.82	2.16	9	1.86	14
15	3.50	16	4.84	1.98	16	2.74	2.08	8	1.44	15
16	3.15	15 S	4.35	1.93	16	2.67	1.92	8 S	1.33	16
17	2.96	16	4.09	1.86	15	2.57	1.81	9	1.41	17
18	2.82	16	3.90	1.88	15	2.60	1.78	9	1.38	18
19	2.85	16	3.86	1.85	15	2.56	1.76	10 S	1.64	19
20	2.51	16	3.47	1.73	16	2.39	1.86	10	1.61	20
21	2.38	15	3.10	1.68	16 S	2.32	1.96	10	1.68	21
22	2.40	16	3.32	1.76	17 S	2.59	1.93	8	1.50	22
23	2.32	15	3.01	1.76	16 S	2.43	1.94	8 S	1.34	23
24	2.31	15	2.98	1.70	14	2.06	2.01	8	1.39	24
25	2.43	17	3.57	1.73	13	1.94	2.03	7	1.23	25
26	2.84	17	3.88	1.71	13 S	1.92	1.87	5 S	0.81	26
27	2.76	17	4.06	1.63	17	2.39	1.88	5	0.81	27
28	2.88	17	4.23	1.53	33	4.36	1.83	5	0.79	28
29	2.93	16	4.05	1.43	41 S	5.07	1.80	5	0.75	29
30	3.12	17	4.58	1.36	30	3.53	1.78	5 S	0.92	30
31	3.24	17	4.76	1.40	17	2.06				31
TOTAL	109.56		156.39	65.29		95.10	52.40		42.86	TOTAL

DAY	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DEC DAILY DISCHARGE (m^3/s)	DEC MEAN CONCENTRATION (mg/L)	DEC DAILY LOAD (t)	DAY
1	1.75	6 S	0.91	2.34 B	6	1.82	1.23 B	80	8.50	1
2	1.62	6	0.84	1.97 B	6	1.36	1.34 B	82	9.49	2
3	1.56	6	0.81	1.81 B	6	1.32	1.56 B	85	12.8	3
4	1.56	6	0.82	1.80 B	6	1.31	1.80 B	120	18.7	4
5	1.56	6	0.81	1.67 B	6	1.15	1.85 B	145	23.3	5
6	1.53	6	0.86	1.42 B	6	0.98	1.92 B	153	25.2	6
7	1.61	6	0.94	1.44 B	6	1.12	1.63 B	146	20.6	7
8	1.62	6	0.94	1.51 B	10	1.30	1.50 B	135	17.6	8
9	1.62	6	0.94	1.55 B	10	1.34	1.35 B	130	15.2	9
10	1.67	7	1.12	1.46 B	11	1.36	1.26 B	130	14.2	10
11	2.09	7	1.26	1.51 B	13	1.70	1.29 B	134	15.1	11
12	2.21	7	1.34	1.56 B	16	2.18	1.25 B	135	15.1	12
13	2.21	7	1.34	1.72 B	18	2.82	1.26 B	135 S	15.5	13
14	2.24	7	1.35	1.75 B	23	3.46	1.44 B	135	17.2	14
15	2.56	8	2.01	3.86 B	41	13.0	1.29 B	135	15.0	15
16	3.56	11	3.50	1.98 B	32	5.47	1.23 B	133	14.1	16
17	3.43	8	2.87	2.39 B	46	8.71	1.15 B	131	13.0	17
18	3.17	8	2.15	3.14 B	63	17.1	1.19 B	129	13.3	18
19	3.07	9	2.39	3.63 B	83	25.3	1.30 B	126	14.4	19
20	3.68	10	3.15	4.04 B	88	34.2	1.25 B	128	13.8	20
21	3.29	6	2.27	4.15 B	103 S	36.9	1.46 B	129	16.2	21
22	2.76	8	1.91	3.62 B	88	32.3	1.35 B	131	15.3	22
23	2.93	6	2.03	3.19 B	93	25.6	1.38 B	135	14.8	23
24	3.29	6	2.27	2.80 B	88	21.6	1.73 B	137	20.5	24
25	3.21	6	2.22	2.46 B	84	18.0	1.80 B	138	21.5	25
26	3.00	6	2.07	2.36 B	82	16.7	2.01 B	137	23.8	26
27	3.16	6	2.20	2.13 B	81	14.8	2.38 B	132	26.6	27
28	3.12 B	6	2.16	1.69 B	80	11.7	1.47 B	120	19.2	28
29	2.85 B	6	1.87	1.52 B	79	10.4	1.16 B	102	10.0	29
30	2.49 B	6	1.72	1.34 B	80	9.35	1.02 B	84	7.40	30
31	2.42 B	10 S	2.09				0.873 B	88	6.20	31
TOTAL	77.92		53.12	67.86		334.30	44.793		490.89	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

SOURIS RIVER AT WAWANESA - STATION NO. 05NG001

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JAN 18	15:25	0.5	0.438 B	27	MID X												1320				DH48
JAN 18	15:26	0.5	0.438 W	15	MID X												970				DH48
MAR 01	14:45	0.5	1.52 B	46	MID X												1060				DH48
APR 02	15:20	1.0	1.84 B	10	42.0 M												593				DH59
APR 02	15:30	1.0	1.70 B	10	38.0 M												591				DH59
APR 02	15:40	1.0	1.78 B	11	34.0 M												593				DH59
APR 02	15:50	1.0	1.49 B	9	30.0 M												591				DH59
APR 02	16:00	1.0	1.53 B	10	28.0 M												582				DH59
APR 03	18:30	2.0	7.91 W	17	38.0																DH59
APR 04	16:00	1.0	8.55 W	19	38.0																DH59
APR 05	17:10	2.0	9.94 W	22	38.0																DH59
APR 06	18:25	2.0	12.2 W	33	38.0																DH59
APR 09	14:40	2.0	10.1	27	38.0																DH59
APR 09	18:30	6.0	9.95	24	38.0												310				DH59
APR 14	15:30	10.0	5.82	20	38.0																DH59
APR 15	14:50	10.0	4.93	17	38.0																DH59
APR 16	19:10	10.0	4.60	12	38.0																DH59
APR 18	18:45	12.0	5.87	10	38.0																DH59
APR 20	18:10	14.0	5.55	10	38.0																DH59
APR 25	16:30	12.0	4.02	10	38.0																DH59
MAY 07	13:10	8.0	23.7	30	38.0												448				DH59
MAY 10	17:40	11.0	22.5	26	38.0												570				DH59
MAY 13	17:40	12.5	24.4	24	38.0																DH59
MAY 15	17:40	15.0	23.4	24	38.0																DH59
MAY 19	13:25	14.0	25.2	26	38.0																DH59
MAY 23	18:00	15.5	21.0	18	38.0												571				DH59
MAY 29	17:30	18.0	23.9	16	38.0																DH59
JUN 04	14:20	20.0	7.18	21	26.0 M																DH59
JUN 04	14:30	20.0	5.49	20	32.0 M												661				DH59
JUN 04	14:40	20.0	3.85	23	36.0 M												655				DH59
JUN 04	14:50	20.0	4.77	23	38.0 M												663				DH59
JUN 04	15:00	20.0	6.95	26	44.0 M												645				DH59
JUN 11	17:40	19.0	23.7	20	38.0												664				DH59
JUN 13	17:30	20.0	21.2	19	38.0												688				DH59
JUN 17	16:25	23.0	15.2	17	38.0																DH59
JUN 19	17:45	24.0	12.5	20	38.0																DH59
JUN 21	18:00	25.0	10.3	20	38.0												688				DH59
JUL 16	13:30	23.0	3.08	16	38.0																DH59
AUG 21	12:40	21.0	1.85	16	38.0												754				DH59
AUG 22	16:00	20.0	1.80	17	38.0												810				DH59
AUG 23	07:45	17.0	1.74	16	38.0																DH59
AUG 26	15:00	25.0	1.68	13	38.0																DH59
AUG 29	12:30	20.0	1.43	42	38.0																DH59
SEP 02	16:00	16.0	1.42	12	38.0												851				DH59
SEP 06	17:35	16.0	1.30	13	38.0																DH59
SEP 09	15:15	14.0	1.28	12	38.0												882				DH59
SEP 12	14:40	14.0	2.10	13	38.0																DH59
SEP 16	12:30	15.0	1.94	8	38.0												848				DH59
SEP 19	14:30	14.0	1.78	10	38.0																DH59
SEP 23	17:30	8.0	1.86	8	38.0												800				DH59
SEP 26	14:40	7.0	1.85	5	38.0																DH59
SEP 30	13:00	10.0	1.78	6	38.0												856				DH59
OCT 01	13:40	8.5	1.75	6	38.0																DH59
OCT 31	10:20	1.0	2.42 W	8	MID X												848				DH59
NOV 21	11:30	0.5	4.15 W	104	MID X												931				DH48
DEC 13	10:00	0.5	1.38 W	138	MID X												847				DH48
																	331				DH48

NOTE : SINGLE VERTICAL LOCATED AT 38 METRES

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL

SOURIS RIVER AT WAWANESA - STATION NO. 05NG001

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY: MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1980	APR-DEC	M-S	211	DEC 12	5	MAY 13 *	92.5	DEC 12	1 750	---	---	---
1981	JAN-DEC	M-C	145	JAN 16	5	DEC 22	80.4	MAR 20	3 270	6.23	6.23	---
1982	JAN-DEC	M-C	950	APR 15 *	5	JUL 26	5 530	APR 15 *	42 700	117	81.6	89.9
1983	JAN-DEC	M-C	481	APR 08	8	JAN 26	4 260	APR 08	87 700 *	185	103	50.6
1984	JAN-DEC	M-C	138	DEC 13	5	SEP 26	88.8	MAR 24	4 350	11.9	86.0	84.1

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

SOURIS RIVER NEAR COULTER - STATION NO. 05NF015

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 05 27 N LONG 100 57 12 W
DRAINAGE AREA: 43 300 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 3 741.84 TONNES FOR THE PERIOD JAN 01 TO DEC 31

REMARKS:

	JAN			FEB			MAR			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.503 B	41	1.78	0.874 B	52	4.58	1.05 B	8	0.73	1
2	0.470 B	40	1.62	0.835 B	50	4.33	1.18 B	8	0.82	2
3	0.418 B	40	1.45	0.855 B	59	4.36	1.35 B	8	0.93	3
4	0.618 B	47	2.51	0.900 B	56	4.35	1.46 B	9	1.14	5
5	0.710 B	62	3.80	0.758 B	54	3.58	1.67 B	9	1.30	6
6	0.735 B	66	4.19	0.663 B	52	2.98	2.08 B	10	1.80	6
7	0.748 B	66	4.27	0.790 B	49	3.34	2.82 B	11	2.49	7
8	0.898 B	67	4.05	0.848 B	46	3.37	3.02 B	11	2.87	8
9	0.897 B	67	4.03	1.03 B	44	3.92	3.38 B	11	3.19	9
10	0.656 B	67	3.80	1.16 B	42	4.21	3.85 B	11	3.66	10
11	0.651 B	67	3.77	1.26 B	40	4.35	4.16 B	12	4.31	11
12	0.619 B	67	3.58	1.30 B	38	4.27	4.33 B	14	5.24	12
13	0.634 B	68	3.78	1.30 B	37	4.16	4.33 B	13	4.86	13
14	0.659 B	75	4.50	1.37 B	36	4.26	4.11 B	14	4.97	14
15	0.629 B	86	4.78	1.44 B	34	4.23	3.72 B	13	4.18	15
16	0.735 B	95	5.10	1.50 B	32	4.15	3.11 B	13	3.49	16
17	0.854 B	93 S	5.26	1.50 B	30	3.89	2.54 B	14	3.07	17
18	0.834 B	92	5.04	1.44 B	28	3.46	2.15 B	14	2.60	18
19	0.671 B	89	5.16	1.33 B	26	2.99	1.94 B	15	2.51	19
20	0.857 B	87	4.94	1.12 B	23	2.23	3.07 B	14	2.50	20
21	0.726 B	85	5.33	1.01 B	21	1.83	3.38 B	14	4.09	21
22	0.812 B	83	5.82	0.893 B	19	1.47	3.74 B	15	4.85	22
23	0.896 B	80	6.21	0.884 B	17	0.98	3.65 B	13	4.10	23
24	0.897 B	75	5.05	0.443 B	15	0.57	3.82 B	13	4.40	24
25	0.855 B	75	5.61	0.417 B	13	0.47	5.10 B	13 S	5.73	25
26	0.848 B	74	5.42	0.686 B	12	0.89	6.83 B	15	8.85	26
27	0.832 B	71	5.10	0.707 B	11	0.67	8.55 B	19	14.0	27
28	0.814 B	69	5.45	0.703 B	9 S	0.55	10.3 B	25	22.0	28
29	1.03 B	68	6.05	0.680 B	9	0.68	10.9 B	29	27.3	29
30	1.02 B	66	5.82				10.0 B	29	25.1	30
31	0.901 B	64	4.96				9.78 B	25	21.1	31
TOTAL	22.632		140.25	28.666		65.14	130.15		196.16	TOTAL

	APR			MAY			JUN			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	8.78 B	28	21.2	23.4	77 S	156	27.1	14 S	32.8	1
2	7.02 B	33	20.0	24.2	38 S	79.5	26.5	11	25.2	2
3	6.07 B	33 S	17.3	23.7	28 S	57.3	25.1	14 S	30.4	3
4	4.65	40 S	16.1	22.7	27 S	53.0	24.2	15 S	31.4	4
5	5.67	72 S	34.6	22.5	30 S	58.3	23.3	14 S	28.2	5
6	5.60	84 S	40.6	21.5	35 S	65.0	23.2	12 S	24.1	6
7	3.31	102 S	29.2	20.8	31 S	55.7	23.3	12 S	24.2	7
8	1.58	133 S	18.3	22.0	20 S	38.0	22.3	16 S	30.8	8
9	1.36	226 S	26.9	24.0	17 S	35.3	20.2	16 S	27.9	9
10	1.22	266 S	28.0	24.3	23 S	48.3	18.8	16 S	25.7	10
11	1.66	264 S	37.9	22.8	27 S	53.2	17.5	16 S	24.2	11
12	4.62	208 S	83.0	23.5	19 S	38.6	15.8	16 S	21.6	12
13	6.36	149 S	82.1	22.7	19 S	37.3	13.8	15	19.1	13
14	4.28	105 S	38.8	23.6	16 S	32.6	12.5	20	21.6	14
15	5.40	76 S	36.4	25.3	25 S	54.6	11.4	26	25.8	15
16	6.33	72 S	38.8	26.3	38 S	86.3	10.4	30 S	27.0	16
17	5.13	66 S	24.4	25.0	29 S	62.6	9.07	30	23.5	17
18	3.69	44 S	13.8	21.5	22 S	40.9	7.86	30	20.3	18
19	2.85	43 S	10.6	19.8	22 S	37.3	7.46	30 S	19.4	19
20	2.78	33 S	7.93	21.6	19 S	35.5	7.34	30	19.0	20
21	2.87	31 S	7.89	23.0	13	25.8	7.07	30	18.3	21
22	3.28	34 S	9.84	23.0	11 S	21.8	6.64	29	16.6	22
23	2.85	86 S	24.2	24.0	11	22.6	5.75	26 S	13.9	23
24	0.726	85 S	5.33	24.5	12	25.4	4.84	28	12.0	24
25	0.356	188 S	5.81	24.6	13 S	27.6	4.53	26	11.0	25
26	0.105	477 S	4.33	26.4	15	34.2	3.96	27	9.28	26
27	0.483 A	406	17.3	27.5	16 S	36.0	3.65	28	8.63	27
28	0.386 E	282	9.82	28.4	17	41.7	3.77	33	10.7	28
29	0.344 E	200	5.94	29.0	21 S	52.5	4.40	34 S	12.9	29
30	11.4 A	133	131	29.5	14 S	35.7	5.14	27	12.0	30
31				28.3	18 S	39.1				31
TOTAL	111.061		847.49	749.2		1 490.1	388.81		827.51	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

SOURIS RIVER NEAR COULTER - STATION NO. 05NF018

SUSPENDED SEDIMENT FOR 1984

DAY	JUL DAILY DISCHARGE (m^3/s)	JUL MEAN CONCENTRATION (mg/L)	JUL DAILY LOAD (t)	AUG DAILY DISCHARGE (m^3/s)	AUG MEAN CONCENTRATION (mg/L)	AUG DAILY LOAD (t)	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	DAY
1	5.72	14	6.92	3.34	11	3.74	1.01	20	1.75	1
2	5.92	8	4.05	3.94	10	3.40	1.03	22	1.96	2
3	5.77	9 S	4.49	3.76	10	3.25	1.07	24	2.22	3
4	5.47	8	3.76	3.64	9 S	2.83	1.12	26	2.52	4
5	4.89	8	3.45	3.45	8	2.38	1.19	28	2.88	5
6	4.49	9	3.48	3.24	7	1.98	1.22	28 S	2.95	6
7	4.22	10	3.85	3.12	7 S	1.89	1.27	28	3.07	7
8	4.01	10 S	3.46	2.94	8	2.03	1.20	28	2.91	8
9	3.78	10	3.27	2.84	12	2.94	1.18	29	2.98	9
10	3.50	11	3.33	2.78	15 S	4.32	1.14	29	2.85	10
11	3.18	12	3.30	2.72	20	4.70	1.22	30	3.15	11
12	2.86	13 S	3.20	2.65	17	3.76	1.70	34 S	4.99	12
13	2.62	13	2.94	2.51	15	3.25	1.89	34	5.55	13
14	2.35	12	2.44	2.52	12	2.61	1.51	34	5.51	14
15	2.20	11	2.09	2.42	11	2.30	1.92	34	5.64	15
16	2.09	9	1.83	2.29	10 S	1.98	2.05	34	6.02	16
17	2.21	9 S	1.72	2.12	9	1.65	2.11	35	6.38	17
18	2.55	8	1.76	2.11	8	1.46	2.01	35	6.08	18
19	3.04	8	2.10	2.10	7	1.27	1.88	34 S	4.96	19
20	3.87	8	2.87	1.85	7 S	1.12	1.63	33	4.36	20
21	4.35	8	3.01	1.78	7	1.08	1.31	33	3.74	21
22	4.51	8 S	3.12	1.76	7	1.06	1.62	38	5.86	22
23	4.77	10	4.12	1.78	9	1.38	1.39	37	4.44	23
24	4.65	12	5.03	1.67	10 S	1.44	1.15	37	3.71	24
25	4.88	15 S	6.32	1.72	11	1.63	1.24	38 S	4.07	25
26	4.78	14	5.76	1.74	10	1.50	1.30	38	4.27	26
27	4.72	13	5.30	1.68	8 S	1.15	1.31	40	4.53	27
28	4.73	12	4.90	1.55	9	1.21	1.30	45	5.05	28
29	4.57	12	4.74	1.41	12	1.46	1.26	52 S	5.65	29
30	4.30	12 S	4.46	1.28	16	1.77	1.35	54	5.63	30
31	3.99	11	3.79	1.10	18	1.71				31
TOTAL	125.28		114.35	74.32		68.24	42.78		126.19	TOTAL

DAY	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	NOV DAILY DISCHARGE (m^3/s)	NOV MEAN CONCENTRATION (mg/L)	NOV DAILY LOAD (t)	DEC DAILY DISCHARGE (m^3/s)	DEC MEAN CONCENTRATION (mg/L)	DEC DAILY LOAD (t)	DAY
1	1.42	55	6.76	1.46 B	58	7.32	1.06 B	84	7.89	1
2	1.42	54	6.63	1.33 B	55	6.32	1.02 B	84	7.48	2
3	1.31	54	5.65	1.29 B	53	5.91	0.975 B	84	7.08	3
4	1.07	54	4.99	1.40 B	49	5.93	0.986 B	83	6.93	4
5	1.35	57	6.65	1.46 B	48	5.80	0.943 B	83	6.76	5
6	1.40	57 S	6.89	1.45 B	45	5.64	0.839 B	83	6.02	6
7	1.51	57	7.44	1.56 B	43	5.80	0.836 B	84	6.07	7
8	1.60	57	7.86	1.85 B	41	6.65	0.825 B	85	6.06	8
9	1.66	57	8.18	2.53 B	42	9.18	0.826 B	84	5.99	9
10	1.62	56	7.84	3.33 B	42	12.1	0.824 B	84 S	5.98	10
11	1.66	57	8.18	3.97 B	40	13.7	0.844 B	84	6.13	11
12	1.63	57	8.03	4.48 B	40	15.5	0.807 B	83	5.79	12
13	1.32	57	6.50	4.75 B	41	16.8	0.698 B	82	4.96	13
14	1.10	57 S	5.42	4.64 B	38	16.3	0.685 B	82	4.71	14
15	0.809	58	4.06	4.99 B	36	16.4	0.655 B	80	4.53	15
16	1.77	73	11.2	4.07 B	34	12.0	0.646 B	78	4.41	16
17	2.04	78	13.7	2.81 B	33	7.77	0.601 B	78	4.06	17
18	2.48	81	17.4	1.73 B	32	4.78	0.559 B	77	3.72	18
19	1.76	78	11.8	1.27 B	32	3.51	0.557 B	77	3.71	19
20	1.67	80	11.5	1.13 B	32 S	3.12	0.551 B	76	3.62	20
21	2.02	82	14.3	1.06 B	31	2.84	0.531 B	75	3.44	21
22	2.27	81 S	15.9	1.01 B	30	2.62	0.472 B	74	3.02	22
23	2.08	78	14.2	1.01 B	28	2.53	0.430 B	74	2.75	23
24	1.50	74	9.59	1.02 B	27	2.38	0.395 B	74	2.53	24
25	1.60	73	9.85	1.04 B	27	2.42	0.395 B	73	2.48	25
26	1.54	69	9.78	1.05 B	32	2.80	0.385 B	72	2.40	26
27	0.824	66	4.70	1.31 B	44	4.80	0.345 B	71	2.12	27
28	0.884 B	62	5.27	1.23 B	59	6.27	0.332 B	68	1.88	28
29	1.05 B	60	5.60	1.16 B	70	7.02	0.303 B	66	1.78	29
30	1.22 B	62 S	6.64	1.09 B	75	7.35	0.282 B	65	1.61	30
31	1.38 B	61	7.27				0.281 B	66	1.60	31
TOTAL	47.077		289.78	62.58		221.37	18.858		137.60	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

SOURIS RIVER NEAR COULTER - STATION NO 05NF016

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
JAN 17	11:10	0.5	0.654 B	93	MID																
FEB 28	13:30	0.5	0.703 W	8	--- X												1050				DH48
MAR 25	12:35	0.5	5.10 W	13	MID												807				DH48
APR 03	10:25	4.0	5.07 W	38	MID												430				DIP
APR 03	16:30	4.0	0.879 B	24	11.0 Z												352				DH59
APR 03	16:33	4.0	1.24 B	25	14.0 Z												362				DH48
APR 03	16:36	4.0	1.30 B	25	17.0 Z												366				DH48
APR 03	16:39	4.0	1.17 B	27	20.0 Z												373				DH48
APR 03	16:42	4.0	1.05 B	26	23.0 Z												367				DH48
APR 03	17:10	4.0	5.07 W	30	MID												371				DH48
APR 04	17:00	7.0	4.04	41	MID												379				DH59
APR 05	10:20	5.0	5.23	73	MID																DH59
APR 06	10:00	5.0	5.92	82	MID																DH59
APR 07	14:50	10.0	3.28	104	MID																DH59
APR 08	17:30	12.0	1.45	144	MID												381				DH59
APR 09	12:15	7.5	1.52	238	MID																DH59
APR 10	11:45	7.0	1.22	258	MID	17	17	39	80	86	93	98	100								DH59
APR 10	15:45	7.0	1.18	274	MID												454	7	76	17	DH59
APR 11	10:00	7.0	1.56	268	MID	22	32	59	93	98	99	99	100				443				DH59
APR 12	19:00	5.0	4.86	187	MID												501	1	67	32	DH59
APR 13	16:30	6.0	5.85	138	MID																DH59
APR 14	12:30	7.0	4.08	102	MID																DH59
APR 15	16:00	11.0	5.62	72	MID																DH59
APR 16	11:30	11.0	5.35	74	MID																DH59
APR 17	14:30	14.5	5.06	50	MID																DH59
APR 18	11:00	13.5	3.68	43	MID												632				DH59
APR 19	11:30	13.0	2.67	43	MID																DH59
APR 20	11:00	16.5	2.75	32	MID																DH59
APR 21	13:00	18.0	2.89	32	MID																DH59
APR 22	17:10	17.0	3.51	32	MID																DH59
APR 23	17:00	14.0	2.60	118	MID																DH59
APR 24	15:20	13.0	0.517	77	MID																DH59
APR 24	15:31	13.0	0.517	79	MID												512				DH59
APR 25	15:00	12.0	0.384	349	MID												516				DH59
APR 26	17:00	3.0	0.035	496	MID	27	40	66	91	97	97	98	100								DH59
MAY 01	17:00	4.0	23.8	60	MID												550	3	57	40	DH59
MAY 02	17:30	8.0	24.1	33	MID																DH59
MAY 03	17:00	8.0	23.5	38	MID												485				DH59
MAY 04	17:00	9.0	22.3	38	MID																DH59
MAY 05	18:00	12.5	22.6	30	MID																DH59
MAY 06	19:30	9.0	20.1	38	MID																DH59
MAY 07	15:05	8.0	4.05	26	18.5 M												557				DH59
MAY 07	15:10	8.0	3.73	31	23.0 M												548				DH59
MAY 07	15:15	8.0	3.87	26	25.0 M												543				DH59
MAY 07	15:20	8.0	3.26	32	30.5 M												549				DH59
MAY 07	15:25	8.0	3.72	32	35.5 M												547				DH59
MAY 07	19:40	7.0	21.0	36	MID																DH59
MAY 08	17:30	9.0	22.1	16	MID																DH59
MAY 09	18:00	9.5	24.7	18	MID												503				DH59
MAY 10	20:00	10.0	23.5	26	MID																DH59
MAY 11	20:00	10.5	22.4	25	MID																DH59
MAY 12	18:00	13.0	23.7	16	MID																DH59
MAY 13	19:45	14.5	22.7	19	MID												530				DH59
MAY 14	20:00	15.0	24.0	14	MID																DH59
MAY 15	18:00	16.0	25.5	37	MID																DH59
MAY 16	20:00	15.0	26.0	38	MID																DH59
MAY 17	18:00	15.0	25.4	23	MID												514				DH59
MAY 18	19:00	14.0	19.9	22	MID																DH59
MAY 19	20:00	16.0	18.7	21	MID																DH59
MAY 20	17:30	13.0	22.3	17	MID																DH59
MAY 22	20:30	13.0	23.0	11	MID																DH59
MAY 25	17:00	10.0	25.0	14	MID												541				DH59
MAY 27	13:25	14.5	27.6	16	MID																DH59
MAY 29	17:20	16.5	29.1	22	MID												550				DH59
MAY 30	12:20	16.0	29.7	12	MID																DH59
MAY 31	20:00	17.0	27.0	19	MID																DH59
JUN 01	18:00	17.0	27.5	12	MID																DH59
JUN 02	17:00	17.5	26.3	36	MID																DH59
JUN 03	18:00	18.0	24.9	15	MID																DH59
JUN 04	17:30	17.0	23.8	15	MID																DH59
JUN 05	18:00	17.5	23.0	13	MID												680				DH59
JUN 06	18:00	18.0	23.3	13	MID																DH59
JUN 07	20:00	19.0	22.9	13	MID																DH59
JUN 08	21:00	18.0	21.8	16	MID																DH59
JUN 09	20:30	15.0	18.0	16	MID																DH59
JUN 10	18:00	16.0	16.4	16	MID																DH59
JUN 11	21:00	15.0	17.6	16	MID																DH59
JUN 12	18:00	16.5	18.0	18	MID												679				DH59
JUN 16	17:00	23.0	10.2	30	MID																DH59
JUN 19	19:40	22.0	7.46	30	MID												708				DH59
JUN 23	21:00	24.0	3.45	28	MID																DH59
JUN 29	20:30	24.5	4.78	33	MID												690				DH59
JUL 03	20:00	21.0	5.83	9	MID																DH59
JUL 06	21:00	23.0	3.81	16	MID												683				DH59
JUL 12	20:00	25.0	2.78	13	MID																DH59
JUL 17	12:25	20.0	2.23	9	MID												698				DH59
JUL 22	20:50	23.0	4.45	8	MID																DH59
JUL 25	20:00	24.5	4.90	15	MID																DH59
JUL 30	20:30	25.0	4.15	12	MID																DH59
AUG 04	15:20	27.0	3.89	8	MID												778				DH59
AUG 07	19:20	26.0	3.07	7	MID																DH59
AUG 10	20:00	26.0	2.76	21	MID												823				DH59
AUG 16	19:30	25.0	2.30	10	MID												828				DH59
AUG 20	20:00	23.0	1.16	7	MID																DH59
AUG 24	20:30	21.0	1.89	11	MID												845				DH59
AUG 27	15:30	23.0	1.69	7	MID																DH59
SEP 06	18:00	17.0	1.26	28	MID												1010				DH59
SEP 12	18:30	12.0	1.76	35	MID												807				DH59
SEP 19	16:00	1.0	1.41	36	MID												1000				DH59
SEP 25	10:30	3.0	1.26	38	MID												894				DH59
SEP 29	11:00	4.0	1.27	53	MID												983				DH59
OCT 05	17:15	14.0	1.37	57	MID												756				DH59
OCT 16	17:00	10.0	1.08	57	MID												768				DH59

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL
Z - A SEDIMENT MEASUREMENT VERTICAL NOT AT THE REGULAR MEASUREMENT CROSS-SECTION

CONTINUED

SOURIS RIVER NEAR COULTER - STATION NO. 05NF015 (CONTINUED)

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m³/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
OCT 22	16:30	2.5	2.27	81	MID																
OCT 30	16:30	0.5	1.22 B	62	MID												758				DH59
NOV 20	13:50	0.5	1.13 B	32	MID												1070				DH59
DEC 10	14:00	0.5	0.624 W	84	MID												1050				DH48
																	843				DH48

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS

SOURIS RIVER NEAR COULTER - STATION NO. 05NF015

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		TOTAL FOR PERIOD (TONNES)	SUMMARY - MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1977	MAR-DEC	M-S	102	APR 14	12	SEP 05	11.7	MAR 14	424	1.60	1.80	---
1978	JAN-DEC	M-C	90	APR 17	10	JUL 31	173	APR 17	3 920	15.5	8.55	81.3
1979	JAN-DEC	M-C	174	JAN 23	9	JUN 08	614	MAY 25 *	22 200 *	87.7	34.9	76.5
1980	JAN-DEC	M-C	401	MAR 20	8	JUN 04	183	APR 10	6 890	19.5	31.1	61.9
1981	JAN-DEC	M-C	274	FEB 18	6	DEC 08	88.7	FEB 21	2 850	7.40	26.3	59.5
1982	JAN-DEC	M-C	244	SEP 08	5	JUL 29	314	APR 24	8 880	33.3	27.5	46.7
1983	JAN-DEC	M-C	228	NOV 03	4	MAY 07 *	211	OCT 23	10 400	35.5	28.6	36.1
1984	JAN-DEC	M-C	496	APR 26 *	7	AUG 07	156	MAY 01	4 330	15.3	27.0	35.5

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

SOURIS RIVER NEAR LAUDER - STATION NO. 05MG025

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 49 24 00 N LONG 100 45 37 W
DRAINAGE AREA: km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 7 133..0 TONNES FOR THE PERIOD MAR 01 TO OCT 31

REMARKS:

MAR				APR			MAY			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	1.00 B	12	1.04	8.99 B	18	14.6	0.835	22	1.59	1
2	1.10 B	12	1.14	8.70 B	18	14.3	10.9 A	66 S	62.2	2
3	1.20 B	12	1.24	8.32 B	19 S	13.7	20.6 E	63 S	113	3
4	1.30 B	12	1.35	8.23 B	21 S	14.9	23.3 E	44 S	88.6	4
5	1.40 B	13	1.87	7.77 B	22 S	14.8	23.6 E	39	79.5	5
6	1.50 B	13	1.80	7.74 B	22 S	14.7	23.4 E	42 S	84.9	6
7	1.70 B	13	1.91	7.61	22	14.3	22.8 A	43	84.7	7
8	1.80 B	13	2.02	6.20	26 S	13.9	22.1	39 S	74.5	8
9	1.90 B	13	2.13	4.60	30 S	11.7	22.4	33 S	63.9	9
10	2.00 B	14	2.42	3.31	30 S	8.58	23.5	33 S	67.0	10
11	2.10 B	14	2.54	2.70	30 S	7.00	24.0	40 S	82.9	11
12	2.30 B	14	2.76	2.66	31 S	7.12	23.7	46	94.2	12
13	2.50 B	14	3.02	3.38	35 S	10.2	23.5	46	97.5	13
14	2.60 B	14	3.14	4.61	37	14.7	23.4	46	97.0	14
15	2.70 B	15	3.50	4.86	37 S	15.6	23.7	49	100	15
16	3.00 B	15	3.89	4.43	39 S	14.9	24.5	50 S	106	16
17	3.30 B	15	4.28	4.68	40 S	16.9	25.5	53	117	17
18	3.60 B	15	4.67	5.10	42 S	18.5	24.8	54 S	116	18
19	4.00 B	15	5.18	4.54	39 S	15.3	23.1	50 S	99.8	19
20	4.50 B	16	6.22	3.72	32 S	10.3	21.5	49 S	91.0	20
21	4.60 B	16	6.36	3.11	24 S	6.45	21.5	56 S	102	21
22	4.70 B	16	6.50	2.82	21 S	5.12	21.8	59 S	112	22
23	4.80 B	16	6.64	2.74	22 S	5.21	22.1	56	107	23
24	4.90 B	16	6.77	2.62	23 S	5.60	22.6	51 S	99.6	24
25	5.00 B	17	7.34	2.58	22 S	4.90	22.7	45 S	88.3	25
26	5.11 B	17	7.81	1.82	18	2.83	22.9	41 S	81.1	26
27	5.44 B	18	8.46	1.53 B	21	2.78	23.6	43	87.7	27
28	6.11 B	18	9.50	1.52 B	27	3.78	24.5	54 S	114	28
29	7.01 B	18	10.9	1.46 B	28 S	3.28	25.4	68	149	29
30	8.08 B	18	12.6	1.13 B	24 S	2.34	26.3	72 S	164	30
31	8.89 B	19	14.8				27.0	68	159	31
TOTAL	110.24		153.02	133.60		308.49	691.935		2 984.99	TOTAL

JUN				JUL			AUG			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	26.8	67	155	3.99	68	23.4	3.08	31	8.25	1
2	25.9	66	148	4.33	72	26.9	2.94	31	7.87	2
3	25.1	66 S	143	4.71	73	29.7	2.88	30	7.46	3
4	24.5	65	138	4.79	73 S	30.2	2.88	29	7.22	4
5	24.1	63 S	131	4.64	71	28.5	2.83	29	7.09	5
6	23.5	61	124	4.45	68	26.1	2.70	28 S	6.53	6
7	23.1	62	124	4.25	66	24.2	2.67	28	6.49	7
8	22.9	63	124	4.25	62	22.8	2.64	28	6.14	8
9	22.5	65 S	127	4.03	60	20.9	2.44	26	5.90	9
10	21.4	78	144	3.75	58 S	18.6	2.40	26	5.61	10
11	20.0	72	124	3.47	56	16.6	2.37	26 S	5.73	11
12	18.9	66 S	108	3.20	54	14.9	2.37	26	5.73	12
13	17.5	65 S	99.8	2.99	52	13.4	2.38	26	5.76	13
14	16.6	75 S	102	2.72	50	11.6	2.35	29	5.89	14
15	14.6	78	97.7	2.42	49	10.2	2.32	29	5.61	15
16	13.7	76	82.3	2.29	48 S	9.50	2.26	31	6.05	16
17	12.6	76	84.2	2.25	47	9.14	2.25	32	6.22	17
18	11.0	79 S	75.1	2.17	45 S	8.44	2.25	33	6.42	18
19	9.57	81	67.0	2.16	44	8.21	2.16	34 S	6.35	19
20	8.71	84 S	63.2	2.25	43	8.38	2.14	34	6.28	20
21	8.23	85	60.4	2.53	40	8.74	2.09	33	5.98	21
22	7.74	83	55.5	2.77	37	8.85	2.05	33	5.84	22
23	7.27	81	50.9	2.94	34	8.64	1.91	33	5.45	23
24	6.39	78	43.6	3.17	32 S	8.79	1.84	32	5.09	24
25	5.85	78	38.0	3.22	31	8.62	1.63	31 S	4.90	25
26	5.05	70 S	30.5	3.29	32	9.10	1.70	31	4.85	26
27	4.61	68	26.3	3.34	32	9.23	1.59	31	4.26	27
28	4.18	64	23.1	3.32	31	8.89	1.55	35 S	4.69	28
29	3.85	64	21.3	3.30	32	9.12	1.55	39	5.22	29
30	3.74	65 S	21.0	3.30	32 S	9.12	1.61	42	5.84	30
31				3.30	32	8.85	1.05	44	3.99	31
TOTAL	438.59		2 739.9	103.45		480.15	65.95		184.77	TOTAL

A - MANUAL GAUGE B - ICE CONDITIONS E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

SOURIS RIVER NEAR LAUDER - STATION NO. 05NG025

SUSPENDED SEDIMENT FOR 1984

DAY	SEP DAILY DISCHARGE (m^3/s)	SEP MEAN CONCENTRATION (mg/L)	SEP DAILY LOAD (t)	OCT DAILY DISCHARGE (m^3/s)	OCT MEAN CONCENTRATION (mg/L)	OCT DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CONCENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.922	44	3.51	1.28	25	2.72				
2	0.940	44	3.57	1.21	28 S	2.72				1
3	0.978	44	3.71	1.21	26	2.72				2
4	1.03	44 S	3.92	1.26	26	2.83				3
5	1.08	44	4.11	1.32	27	3.08				4
6	1.15	43	4.27	1.43	27	3.34				5
7	1.32	41	4.68	1.69	29	4.23				6
8	1.35	40	4.67	1.82	31	4.87				7
9	1.36	38	4.47	1.89	31	5.06				8
10	1.38	37 S	4.36	1.99	32 S	5.50				9
11	1.33	35	4.02							10
12	1.62	36	5.32	2.23	32	6.14				11
13	1.64	40	5.67	2.31	32	6.39				12
14	1.71	40	5.91	2.36	32	6.47				13
15	1.79	40	6.19	2.23	31	6.97				14
16	1.83	38	6.17	2.20	31	5.89				15
17	1.83	37 S	5.86	2.32	33	6.61				16
18	1.78	36	5.54	1.90	32	5.26				17
19	1.75	35	5.29	2.03	31	5.66				18
20	1.68	34	4.84	2.72	32	7.52				19
21	1.64	30	4.25	3.20	32 S	8.85				20
22	1.60	29	4.01	2.99	32	8.27				21
23	1.43	26	3.21	2.87	32	7.93				22
24	1.47	26	3.30	2.86	31	7.71				23
25	1.46	26	3.15	2.94	31	7.87				24
26	1.34	24 S	2.78	2.92	31	7.82				25
27	1.28	24	2.59	2.86	31	7.18				26
28	1.21	25	2.61	2.48	31	6.67				27
29	1.21	26	2.72	2.45 A	31	6.56				28
30	1.24	25	2.68	2.12 E	30	5.50				29
31				1.86 E	30	4.35				30
				1.09 A	30 S	2.83				31
TOTAL	42.295		127.46	65.65		174.29				TOTAL

A - MANUAL GAUGE E - ESTIMATED S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

SOURIS RIVER NEAR LAUDER - STATION NO 05MG025

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP (°C)	INSTANT DISCHARGE (m³/s)	INSTANT CONCENT (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES 002	004	008	016	031	062	125	250	500	1 00	2 00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
FEB 28	10 45	0 5	0 783 E	12	--- X												881				DH48
APR 03	10 00	0 5	8 32 W	19	MID												234				DH59
APR 04	16 40	1 0	8 23 W	21	MID																DH59
APR 05	17 00	4 0	7 77 W	23	MID												212				DH59
APR 06	17 25	4 0	7 74 W	22	MID																DH59
APR 08	08 45	5 0	6 43	26	MID																DH59
APR 09	18 04	6 0	4 10	30	MID																DH59
APR 10	16 30	8 0	3 17	30	MID																DH59
APR 11	16 41	7 0	2 58	30	MID																DH59
APR 12	16 50	7 0	2 63	31	MID																DH59
APR 13	16 45	8 0	3 52	38	MID												248				DH59
APR 15	10 04	7 0	4 98	37	MID																DH59
APR 16	10 45	9 0	4 37	39	MID																DH59
APR 17	16 30	9 0	6 01	40	MID																DH59
APR 18	16 17	9 0	5 08	42	MID																DH59
APR 19	16 45	10 0	4 39	38	MID																DH59
APR 20	09 19	11 0	3 78	33	MID																DH59
APR 21	13 41	14 0	3 07	23	MID																DH59
APR 22	12 55	15 0	2 83	21	MID												541				DH59
APR 23	17 28	14 0	2 74	22	MID																DH59
APR 24	16 50	14 0	2 87	24	MID																DH59
APR 25	16 34	14 0	2 47	21	MID																DH59
APR 29	10 12	1 0	1 46 W	26	MID																DH59
APR 30	15 47	6 0	1 13 W	23	MID												504				DH59
MAY 02	11 00	6 5	2 17 A	70	10 0 M												590				DH59
MAY 02	11 05	6 5	1 67 A	78	14 0 M												593				DH59
MAY 02	11 10	6 5	2 49 A	72	18 0 M												572				DH59
MAY 02	11 15	6 5	1 72 A	78	26 0 M												568				DH59
MAY 02	11 20	6.5	1 21 A	73	32 5 M												584				DH59
MAY 03	15 45	6 0	20.8 Y	60	MID																DH59
MAY 04	15 47	7 0	23 3 Y	40	MID																DH59
MAY 06	12 22	9.0	23 4 Y	43	MID																DH59
MAY 07	15 59	9 0	22.8 Y	282 C	MID																DH59
MAY 08	09 45	8 5	22 0	40	MID																DH59
MAY 08	16 25	10 0	22 0	36	MID																DH59
MAY 09	17 25	10 0	22 5	32	MID												548				DH59
MAY 10	16 25	10 0	23 8	32	MID																DH59
MAY 11	16 55	11 0	24 0	43	MID																DH59
MAY 13	16 50	13 0	23 5	123 C	MID																DH59
MAY 14	16:05	14 0	23 4	82 C	MID																DH59
MAY 15	15 52	15.0	23 8	65	MID																DH59
MAY 16	16 08	16 0	24 9	51	MID																DH59
MAY 18	17 55	14 0	24 5	53	MID												593				DH59
MAY 19	19:05	18.0	22 5	49	MID																DH59
MAY 20	18 45	17.0	21.3	50	MID																DH59
MAY 21	18:55	15.0	21.6	58	MID																DH59
MAY 22	19:59	12.0	22.0	58	MID												627				DH59
MAY 24	19:54	12.0	22 7	48	MID																DH59
MAY 25	19:57	14 0	22 7	43	MID																DH59
MAY 26	16:38	16.0	23 0	40	MID																DH59
MAY 28	20:30	18 0	24 7	60	MID												653				DH59
MAY 30	20:58	19.0	26 6	71	MID																DH59
JUN 03	18:44	19.0	24.9	66	MID																DH59
JUN 05	18:50	16.0	23.9	62	MID												694				DH59
JUN 07	17:20	18.0	23 0	246 C	MID																DH59
JUN 09	18:33	16.0	22.3	83	MID																DH59
JUN 12	17:50	17.0	18.7	65	MID																DH59
JUN 13	11:20	17.5	17 8	65	MID												686				DH59
JUN 14	16:15	19 0	15.5	77	MID																DH59
JUN 18	17:45	22.0	10.6	79	MID																DH59
JUN 20	19:15	22.0	8.52	85	MID												703				DH59
JUN 26	16:26	25.0	5.00	69	MID												707				DH59
JUN 30	19:45	20.0	3.78	66	MID																DH59
JUL 04	18:38	22 0	4 76	72	MID												708				DH59
JUL 10	19:45	25 0	3.65	57	MID																DH59
JUL 16	18:21	24.0	2.27	48	MID												713				DH59
JUL 18	10:00	21.0	2.15	45	MID																DH59
JUL 24	18:51	25.0	3.22	32	MID												699				DH59
JUL 30	19:49	26.0	3.29	32	MID																DH59
AUG 06	19:30	27.0	2.69	28	MID												809				DH59
AUG 11	19:41	25 0	2.37	26	MID												782				DH59
AUG 19	16:55	22.0	2.16	34	MID												835				DH59
AUG 25	17:25	26.0	1.83	31	MID												892				DH59
AUG 28	09:55	26.0	1.55	30	MID																DH59
AUG 28	13:20	22 5	1.55	36	MID												896				DH59
SEP 04	20:58	16 0	1.06	44	MID												930				DH59
SEP 10	18:50	16.0	1.36	36	MID												985				DH59
SEP 17	18:58	16.0	1 80	37	MID												976				DH59
SEP 26	13:10	7.5	1.33	24	MID												935				DH59
OCT 02	15:45	7.5	1.20	26	MID												951				DH59
OCT 10	09:15	3.0	1.87	32	MID												720				DH59
OCT 20	12:10	2.0	3.23	32	MID												722				DH59
OCT 31	13:35	2.0	1 09 V	30	MID												547				DH59

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

DISCHARGE SYMBOL(S): A - MANUAL GAUGE; B - ICE CONDITIONS; V - DAILY MEAN; MANUAL GAUGE
W - DAILY MEAN; ICE CONDITIONS; Y - DAILY MEAN; ESTIMATED
CONCENTRATION SYMBOL(S): C - COARSE MATERIAL PRESENT; E - ORGANIC MATERIAL PRESENT
VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL; M - A SEDIMENT MEASUREMENT VERTICAL

SOURIS RIVER NEAR LAUDER - STATION NO. 05NG025

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY MAR-OCT MEAN LOAD (TONNES)	SUMMARY MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY MAR-OCT STANDARD ERROR OF MEAN %
1983	MAR-NOV	M-S	80	APR 26	11	AUG 01 *	526	APR 26 *	15 500 *	83.2	83.2	---
1984	FEB-OCT	M-S	282	MAY 07 *	12	FEB 29	184	JUN 08	7 130	29.1	46.2	36.9

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

SOURIS RIVER NEAR MINTO - STATION NO. 05NG025

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP (°C)	INSTANT DISCHARGE (m³/s)	INSTANT CONCENT (mg/L)	SINGLE SAMPLING VERTICAL (m)		PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES 002	004	002	016	031	062	125	250	500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
MAR 01	10:00	0.5		5	MID																	
MAR 24	14:40	0.5		17	MID													571				DH59
MAR 26	14:50	0.5		10	MID													732				CH59
MAR 27	15:00	0.5		9	MID																	DH59
MAR 29	09:45	1.0		9	---	X																DH59
MAR 30	17:00	1.0		12	MID																	CIP
MAR 31	09:55	0.5		11	MID																	DH59
APR 01	18:35			14	MID																	DH59
APR 02	11:00	1.0		18	MID													544				DH59
APR 02	17:10	0.5		27	MID																	DH59
APR 03	14:05	1.5		26	MID																	DH59
APR 04	17:40	0.5		45	MID																	DH59
APR 05	18:00	0.5		41	MID													373				DH59
APR 07	16:35	4.0		34	MID																	DH59
APR 09	14:20	4.5		22	MID																	DH59
APR 10	17:00	4.5		19	MID																	DH59
APR 11	10:20	7.0		19	MID																	DH59
APR 12	18:00	6.0		23	MID													326				DH59
APR 13	12:50	7.0		20	MID																	DH59
APR 15	18:15	11.0		18	MID																	DH59
APR 16	10:30	12.0		19	MID																	DH59
APR 17	11:30	11.5		19	MID																	DH59
APR 18	13:25	13.0		15	MID																	DH59
APR 20	18:25	15.0		12	MID													367				DH59
APR 21	16:05	16.0		13	MID																	DH59
APR 22	19:15	15.5		9	MID													398				DH59
APR 24	15:00	14.0		7	MID																	DH59
APR 26	11:35	8.0		6	MID																	DH59
MAY 01	11:10	4.5		5	MID																	DH59
MAY 05	18:10	12.5		33	MID													530				DH59
MAY 08	20:15	10.0		26	MID																	DH59
MAY 11	11:25	9.5		23	MID													509				DH59
MAY 14	11:15	12.0		23	MID																	DH59
MAY 17	13:40	15.0		28	MID													551				DH59
MAY 21	12:55	14.5		25	MID																	DH59
MAY 23	10:30	14.0		26	MID													590				DH59
MAY 26	11:10	12.0		27	MID																	DH59
MAY 29	10:20	14.5		24	MID																	DH59
JUN 01	19:10	18.0		26	MID																	DH59
JUN 04	09:05	16.0		41	MID													851				DH59
JUN 07	10:35	17.0		46	MID																	DH59
JUN 10	07:30	14.5		51	MID													891				DH59
JUN 11	12:10	17.5		43	MID																	DH59
JUN 14	11:30	17.0		45	MID																	DH59
JUN 17	16:55	23.0		33	MID													891				DH59
JUN 20	10:55	21.5		45	MID																	DH59
JUN 23	12:00	21.0		51	MID													696				DH59
JUN 26	18:30	24.5		37	MID																	DH59
JUN 29	20:00	25.5		36	MID													702				DH59
JUL 03	17:10	24.5		35	MID																	DH59
JUL 06	17:20	24.0		31	MID													728				DH59
JUL 12	10:25	24.0		25	MID																	DH59
JUL 16	21:00	23.0		14	MID													728				DH59
JUL 21	14:45	26.0		8	MID																	DH59
JUL 25	12:30	23.5		10	MID													737				DH59
JUL 30	12:20	24.5		11	MID																	DH59
AUG 02	11:55	26.0		10	MID													718				DH59
AUG 07	10:50	23.5		10	MID																	DH59
AUG 11	20:45	25.0		11	MID													725				DH59
AUG 17	09:35	21.5		15	MID																	DH59
AUG 23	11:50	18.5		17	MID													624				DH59
AUG 27	10:15	21.0		17	MID																	DH59
SEP 02	13:45	14.5		11	MID													671				DH59
SEP 07	18:35	18.0		12	MID																	DH59
SEP 12	19:10	14.0		12	MID													689				DH59
SEP 18	10:35	15.0		13	MID																	DH59
SEP 23	18:30	7.0		5	MID													685				DH59
SEP 28	15:55	8.0		9	MID																	DH59
OCT 03	11:20	8.5		12	MID													801				DH59
OCT 08	15:15	14.0		11	MID																	DH59
OCT 14	11:20	11.5		18	MID													981				DH59
OCT 18	12:25	4.0		6	MID																	DH59
OCT 23	14:00	3.5		9	MID													672				DH59
OCT 28	16:30	0.5		17	MID																	DH59
OCT 29	10:45	0.5		18	MID													685				DH59

NOTE : SINGLE VERTICAL LOCATED AT MIDSTREAM

VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL

MANITOBA

SOURIS RIVER NEAR MINTO - STATION NO. 05NG026

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1983	MAR-OCT	M-S	250	APR 05 *	8	JUL 07	---		---	---	---	---
1984	MAR-OCT	M-S	51	JUN 10	5	MAR 01 *	---		---	---	---	---

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

SOURIS RIVER NEAR WESTHOPE - STATION NO. 05NF012

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1955	AUG-DEC #	M-MS	161	NOV 05	12	AUG 14	---		---	---	---	---
1957	JAN-SEP #	M-MS	225	FEB 07	16	JUL 12	---		---	---	---	---
1958	APR-OCT #	M-MS	90	JUN 11	23	SEP 04	---		---	---	---	---
1959	APR-AUG #	M-MS	51	JUN 17	5	AUG 27	---		---	---	---	---
1974	OCT-DEC #	M-MS	35	DEC 18	6	NOV 20 *	---		---	---	---	---
1975	JAN-DEC #	M-MS	318	FEB 20 *	11	DEC 23	---		---	---	---	---
1976	JUL-OCT	M-S	302	SEP 18	22	AUG 05	348	AUG 30 *	5 550 *	---	---	---

M - MANUAL SAMPLING

S - SEASONAL OPERATION

MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE

* - EXTREME FOR PERIOD OF RECORD

SOUTH TOBACCO CREEK NEAR MIAMI - STATION NO. 05OF017

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1963	JUN-OCT	M-S	3 050	JUL 19	65	JUL 15	346	JUN 11	594	---	---	---
1964	MAR-SEP	M-S	5 100	SEP 01	0	JUL 09 *	2 880	SEP 01	4 600	---	---	---
1965	MAR-OCT	M-S	7 500	MAY 05	55	SEP 25	2 400	MAY 05	8 750	35.8	35.8	---
1966	MAR-OCT	M-S	5 810	MAY 05	18	MAR 27	4 910	MAY 05	11 500	45.5	41.4	13.4
1967	MAR-OCT	M-S	5 000	APR 20	5	JUL 23	5 480	APR 20	11 500	45.5	43.2	8.5
1968	MAR-OCT	M-S	8 550	JUL 30	19	MAR 17	13 400	AUG 24 *	33 400	135	66.4	35.2
1969	MAR-OCT	M-S	6 000	APR 13	57	APR 06	3 950	APR 12	19 600	75.9	69.1	28.9
1970	MAR-OCT	M-S	5 420	APR 28	0	AUG 02	5 850	APR 28	34 300	140	80.9	23.5
1971	MAR-OCT	B-S	4 330	APR 11	19	OCT 10	2 580	APR 10	9 630	39.3	76.0	22.9
1972	MAR-OCT	B-S	3 830	APR 23	9	APR 07	646	APR 23	4 580	18.6	67.9	24.2
1973	MAR-OCT	B-S	387	JUL 29	11	MAR 20	5.73	JUN 19	45.4	0.18	60.4	27.1
1974	MAR-OCT	B-S	7 210	MAY 30	0	JUN 28	7 610	MAY 21	37 300 *	152	68.5	24.6
1975	MAR-OCT	B-S	4 020	JUN 28	88	JUN 03	1 430	JUN 28	3 910	11.9	64.3	25.6
1976	MAR-OCT	B-S	3 540	APR 05	113	JUN 05	1 530	APR 06	7 430	30.3	61.5	24.8
1977	MAR-OCT	B-S	8 340	MAY 18 *	6	JUN 22	745	MAY 18	1 110	4.64	67.1	26.8

B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

TAYLOR RIVER NEAR THOMPSON - STATION NO. 05TC002

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAY-SEP MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1971	MAR-OCT	B-S	35	JUL 13	11	OCT 04	132	JUL 04	3 350	19.7	19.7	---
1972	MAR-SEP #	B-S	82	MAY 10	13	APR 12	141	MAY 10	789	---	---	---
1973	MAY-OCT	A-S	138	MAY 14	6	OCT 15	169	MAY 13	3 480	21.5	20.8	4.4
1974	MAY-SEP	A-S	128	MAY 11	7	SEP 25 *	234	MAY 11	6 230	40.7	27.3	24.6
1975	MAY-SEP #	A-S	185	MAY 25	15	SEP 05	440	MAY 26	6 080	---	---	---
1976	MAY-AUG	A-S	224	JUN 09 *	14	AUG 30	302	JUN 18	6 810	---	---	---
1977	APR-SEP	A-S	141	MAY 31	15	SEP 20	238	MAY 31	6 330	37.8	29.9	18.2
1978	MAY-SEP	A-S	185	JUN 01	10	SEP 14	153	MAY 15	4 440	---	---	---
1979	MAY-SEP	B-S	182	MAY 28	18	SEP 06	482	MAY 28 *	12 000 *	78.6	39.7	26.7

A - AUTOMATIC SAMPLING

B - BOTH AUTOMATIC AND MANUAL SAMPLING

S - SEASONAL OPERATION

\# - PERIOD OF RECORD INCOMPLETE

* - EXTREME FOR PERIOD OF RECORD

TURTLE RIVER NEAR LAURIER - STATION NO. 05LJ007

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1966	MAY-OCT	M-S	2 000	MAY 05	33	SEP 25	7 190	MAY 05	25 500	---	---	---
1967	MAR-OCT	M-S	1 250	MAY 07	0	SEP 10 *	3 370	MAY 08	33 800	138	138	---
1968	MAR-OCT	M-S	1 320	APR 21	14	MAR 31	1 380	APR 21	7 770	31.7	84.9	82.8
1969	MAR-OCT	M-S	4 720	JUN 27	29	SEP 14	15 500	JUN 27	51 500	210	127	40.8
1970	MAR-OCT	M-S	2 970	MAY 18	26	AUG 16	8 570	MAY 18	78 700	321	175	34.8
1971	MAR-OCT	M-S	3 010	JUN 05	24	OCT 17	16 200	JUN 05	73 000	298	200	26.6
1972	MAR-OCT	M-S	1 780	APR 27	12	OCT 16	3 830	APR 26	29 100	119	186	24.4
1973	MAR-OCT	M-S	1 950	JUN 20	4	MAR 19	1 170	JUN 20	5 700	23.3	163	27.6
1974	MAR-OCT	M-S	1 780	MAY 12	7	OCT 14	8 840	MAY 12	71 800	294	179	23.6
1975	MAR-OCT	M-S	2 040	AUG 25	23	JUN 02	211 000	SEP 19 *	389 000 *	1 590	335	47.9
1976	MAR-OCT	M-S	1 840	JUN 13	16	OCT 08	7 060	APR 14	89 300	364	339	42.5
1977	MAR-OCT	M-S	5 210	JUL 12 *	14	MAY 03	23 000	JUL 12	48 800	200	326	40.2
1978	MAR-OCT	M-S	3 280	APR 27	6	OCT 27	3 910	APR 27	22 800	93.5	307	39.5
1979	MAR-OCT	M-S	4 280	MAY 17	10	APR 19	16 800	MAY 17	79 500	324	308	36.2
1980	MAR-OCT	M-S	1 190	APR 19	3	SEP 18	1 040	APR 18	7 730	31.5	288	36.5
1981	MAR-OCT	M-S	1 060	MAY 22	5	OCT 13	1 220	MAY 23	7 620	30.3	271	36.8
1982	MAR-OCT	M-S	983	APR 23	5	SEP 15	2 190	APR 23	15 500	63.4	258	36.3

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

VALLEY RIVER NEAR DAUPHIN - STATION NO. 05LJ010

SUSPENDED SEDIMENT FOR 1984

LOCATION: LAT 51 18 45 N LONG 100 00 39 W
DRAINAGE AREA: 2 870 km²
TYPE OF FLOW: REGULATED
TYPE OF GAUGE: RECORDING

TOTAL SUSPENDED SEDIMENT LOAD 4 168.00 TONNES FOR THE PERIOD MAR 01 TO OCT 31

REMARKS:

	MAR			APR			MAY			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0.427 B	10	0.37	7.88 B	33 S	22.4	1.75	8	1.21	1
2	0.450 B	10	0.39	7.12 B	30	18.5	1.84	5	0.95	2
3	0.531 B	9	0.41	7.18 B	30	18.6	2.23	6 S	1.18	3
4	0.581 B	8	0.40	7.48 B	31 S	20.0	2.57	7	1.55	4
5	0.565 B	7	0.34	8.72 B	36	28.5	2.85	8	1.97	5
6	0.465 B	6	0.24	6.18	25	13.8	2.86	6 S	1.48	6
7	0.408 B	5	0.18	4.93	22 S	9.37	2.75	6	1.43	7
8	0.327 B	5	0.14	4.56	19	7.52	2.56	6 S	1.33	8
9	0.386 B	6	0.20	4.49	15	5.82	2.40	7	1.45	9
10	0.462 B	7	0.29	4.23	12 S	4.39	2.55	13 S	2.86	10
11	0.391 B	7	0.24	4.04	12	4.19	2.74	12 S	2.84	11
12	0.317 B	10	0.27	3.87	11	3.88	2.56	16 S	3.94	12
13	0.441 B	15	0.57	3.78	11	3.59	2.64	20 S	4.56	13
14	0.489 B	16	0.65	3.60	11 S	3.42	2.93	15 S	3.80	14
15	0.284 B	14	0.31	3.53	11	3.36	3.22	17	4.73	15
16	0.200 B	7	0.12	3.50	14	4.23	3.33	27	7.77	16
17	0.131 B	7	0.08	3.35	14 S	4.05	3.42	39	11.5	17
18	0.114 B	8	0.09	2.82	13 S	3.17	2.99	36	9.30	18
19	0.085 B	13	0.11	2.15	15	2.79	2.82	35	8.53	19
20	0.092 B	15	0.12	2.24	26 S	5.03	3.04	44	11.8	20
21	0.128 B	16	0.18	2.04	30 S	3.53	3.02	37	9.65	21
22	0.182 B	16	0.27	1.82	17	2.87	2.92	32 S	8.07	22
23	0.874 B	16	0.93	1.68	14	2.04	2.90	37	9.27	23
24	1.01 B	13	1.13	1.64	10 S	1.42	3.53	67	20.4	24
25	3.71 B	13	4.17	1.50	9	1.24	4.42	107	40.9	25
26	6.32 B	19 S	10.2	1.51	9	1.17	5.09	143 S	62.9	26
27	7.56 B	21 S	13.7	1.75 B	11 S	1.66	5.67	162	79.4	27
28	8.91 B	22 S	16.9	3.16 B	26	7.14	5.55	145	70.0	28
29	10.5 B	27	24.5	1.81 B	11 S	1.72	4.96	82	35.1	29
30	10.3 B	36	32.0	1.64	11	1.56	4.41	33 S	12.2	30
31	8.98 B	37	28.7				4.00	39	13.5	31
TOTAL	85.302		136.20	114.28		210.85	100.52		444.85	TOTAL

	JUN			JUL			AUG			
DAY	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m³/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	3.62	46 S	15.0	12.0	103 S	107	1.85	21	3.36	1
2	3.39	62	17.6	11.1	98 S	94.0	1.77	20	3.08	2
3	3.18	70 S	18.2	10.6	96	87.8	1.70	19	2.79	3
4	3.01	55	14.3	10.2	93 S	82.0	1.60	18	2.33	4
5	2.83	36	9.29	9.67	91	77.5	1.30	17	1.91	5
6	2.79	33 S	7.85	9.45	89 S	72.7	1.14	16	1.58	6
7	3.23	53 S	14.6	9.10	87	66.4	0.986	14	1.20	7
8	3.25	59	16.6	8.70	85 S	63.9	0.885	14	1.07	8
9	3.25	52 S	14.6	8.26	83	59.2	0.841	13 S	0.94	9
10	3.36	56	16.3	7.88	80	54.5	0.766	13 S	0.86	10
11	3.46	75	22.3	7.37	77	49.0	0.656	13	0.74	11
12	3.27	81	25.7	6.78	73	42.8	0.580	13	0.65	12
13	3.05	91 S	24.0	6.43	68	37.8	0.514	12	0.53	13
14	2.83	85	20.6	6.03	63	32.6	0.464	12	0.48	14
15	2.77	105	25.1	5.60	59	28.5	0.388	11	0.37	15
16	2.82	123 S	27.8	5.35	55	25.4	0.363	14	0.46	16
17	2.78	112	25.7	5.02	51	22.1	0.315	14	0.38	17
18	3.13	74 S	19.9	4.52	45	17.6	0.263	13	0.30	18
19	2.72	41	9.84	4.03	40	13.9	0.188	12	0.21	19
20	3.12	45	12.1	3.65	34	10.7	0.156	12	0.16	20
21	4.17	64	23.1	3.37	28	8.15	0.124	12	0.13	21
22	9.30	106 S	85.2	3.12	22 S	5.83	0.103	12	0.11	22
23	10.6	119 S	109	2.84	18	4.66	0.085	12	0.07	23
24	12.7	123 S	135	2.52	17	3.85	0.053	13	0.06	24
25	19.4	140 S	236	2.45	15	3.15	0.040	14	0.05	25
26	28.2	217 S	529	2.31	15 S	2.99	0.022	13	0.02	26
27	25.0	136 S	294	2.16	14	2.64	0.005	11	0.01	27
28	18.8	111 S	180	2.04	14	2.47	0	11	0	28
29	15.6	117 S	156	1.85	15	2.41	0	10	0	29
30	13.3	119	137	1.80	17	2.64	0	9	0	30
31				1.75	18	2.69	0	8	0	31
TOTAL	216.58		2 246.98	176.30		1 089.61	17.074		23.43	TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

VALLEY RIVER NEAR DAUPHIN - STATION NO. 05LJ010

SUSPENDED SEDIMENT FOR 1984

	SEP			OCT						
DAY	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAILY DISCHARGE (m^3/s)	MEAN CON-CENTRATION (mg/L)	DAILY LOAD (t)	DAY
1	0	7	0	0.357	12	0.37				1
2	0	6	0	0.353	12	0.37				2
3	0	5	0	0.302	10	0.26				3
4	0	5	0	0.248	8 S	0.17				4
5	0	4	0	0.219	9	0.17				5
6	0	4	0	0.211	10	0.18				6
7	0	7	0	0.177	10	0.15				7
8	0	5	0	0.135	11	0.13				8
9	0	4	0	0.122	10	0.11				9
10	0	4	0	0.104	10 S	0.09				10
11	0	3	0	0.091	8	0.06				11
12	0.004	5	0	0.061	4 S	0.02				12
13	0.024	8 S	0.02	0.059	4	0.02				13
14	0.063	8 S	0.05	0.061	4	0.02				14
15	0.139	10	0.12	0.114	9	0.09				15
16	0.153	12	0.16	0.206	21 S	0.38				16
17	0.156	13 S	0.22	0.189	12	0.20				17
18	0.258	10	0.22	0.176	5 S	0.09				18
19	0.313	8	0.22	0.223	5	0.10				19
20	0.333	6	0.17	0.321	7	0.19				20
21	0.370	8	0.26	0.685	10	0.59				21
22	0.384	9	0.30	0.672	5 S	0.29				22
23	0.385	9	0.30	0.709	4	0.25				23
24	0.519	10 S	0.45	0.742	4	0.26				24
25	0.586	10	0.49	0.808	5 S	0.35				25
26	0.531	10	0.46	0.895	5	0.46				26
27	0.470	11	0.45	0.963	4	0.33				27
28	0.438	11	0.42	0.963	4 S	0.33				28
29	0.370	10	0.32	0.984	3	0.26				29
30	0.373	9 S	0.28	1.07 B	3 S	0.28				30
31				1.06 B	3 S	0.28				31
TOTAL	5.909		4.93	13.315		8.85				TOTAL

B - ICE CONDITIONS

S - SAMPLE(S) COLLECTED THIS DAY

MANITOBA

VALLEY RIVER NEAR DAUPHIN - STATION NO. 05LJ010

INSTANTANEOUS SUSPENDED SEDIMENT FOR 1984

DATE	TIME	WATER TEMP. (°C)	INSTANT. DISCHARGE (m^3/s)	INSTANT. CONCENT. (mg/L)	SINGLE SAMPLING VERTICAL (m)	PERCENT FINER THAN INDICATED SIZE, IN MILLIMETRES .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	DISSOLVED SOLIDS (mg/L)	PERCENT SAND	SILT	CLAY	TYPE OF SAMPLER
MAR 26	10:45	0.5	5.22 W	17	10RB																
MAR 26	15:50	0.5	5.22 W	22	10RB												426				DH59
MAR 27	10:30	0.5	7.56 W	20	10RB												386				DH59
MAR 28	11:00	0.5	8.91 W	22	10RB																DH59
MAR 28	17:00	0.5	8.91 W	22	10RB																DH59
APR 01	12:00	0.5	7.86 W	33	WELS X												370				DH59
APR 04	16:00	2.0	7.48 W	36	10RB																DIP
APR 07	08:30	3.0	5.10	22	10RB												386				DH59
APR 07	10:10	3.0	5.09	21	4.0 M												377				DH59
APR 07	10:15	3.0	5.09	20	8.5 M																DH48
APR 07	10:20	3.0	5.09	21	11.5 M												383				DH48
APR 07	10:25	3.0	5.09	20	13.5 M												385				DH48
APR 07	10:30	3.0	5.09	23	16.0 M												354				DH48
APR 07	10:50	3.0	5.09	22	10RB												379				DH48
APR 10	12:00	4.0	4.25	12	10RB												384				DH59
APR 14	10:00	7.0	3.52	11	10RB																DH59
APR 17	20:00	11.0	3.16	13	10RB																DH59
APR 18	14:50	12.0	2.88	13	10RB												452				DH59
APR 20	15:00	14.0	2.22	25	10RB																DH59
APR 21	14:30	16.0	2.02	19	10RB																DH59
APR 24	17:30	12.0	1.85	9	10RB												507				DH59
APR 27	17:00	14.0	1.75 W	10	10RB																DH59
APR 28	15:00	5.0	1.79 B	9	10RB																DH59
MAY 03	10:00	5.0	2.22	5	10RB																DH59
MAY 05	10:30	5.0	2.86	6	10RB												587				DH59
MAY 08	07:00	6.0	2.59	5	10RB																DH59
MAY 10	10:00	8.0	2.39	10	10RB												528				DH59
MAY 11	10:00	7.0	2.74	12	10RB																DH59
MAY 12	17:00	8.0	2.56	17	10RB																DH59
MAY 13	20:00	13.0	2.69	21	10RB																DH59
MAY 14	16:30	15.0	3.02	10	10RB																DH59
MAY 22	17:00	10.0	2.92	32	10RB												555				DH59
MAY 25	16:00	15.0	5.16	148	10RB																DH59
MAY 30	15:00	17.0	4.33	26	10RB												483				DH59
JUN 01	19:00	20.0	3.49	51	10RB																DH59
JUN 03	15:00	21.0	3.15	70	10RB																DH59
JUN 05	05:15	18.0	2.76	32	10RB												470				DH59
JUN 07	20:00	18.0	3.31	60	10RB																DH59
JUN 09	14:00	15.0	3.28	51	10RB																DH59
JUN 13	21:30	18.0	2.95	56	10RB												369				DH59
JUN 15	10:30	19.0	2.60	125	10RB																DH59
JUN 18	21:00	22.0	2.84	47	10RB												385				DH59
JUN 22	09:00	20.0	9.69	102	10RB																DH59
JUN 23	10:30	18.0	9.79	115	10RB												507				DH59
JUN 24	12:45	20.0	12.6	122	10RB																DH59
JUN 25	09:30	20.0	15.2	112	10RB																DH59
JUN 25	20:00	23.0	27.2	194	10RB																DH59
JUN 26	09:30	19.0	27.4	208	10RB																DH59
JUN 27	09:00	19.5	26.1	136	10RB																DH59
JUN 27	15:00	21.0	23.5	113	23.0 M																DH59
JUN 27	15:05	21.0	23.5	115	19.0 M												384				DH59
JUN 27	15:10	21.0	23.4	115	17.0 M												389				DH59
JUN 27	15:15	21.0	23.4	115	15.0 M												387				DH59
JUN 27	15:20	21.0	23.4	115	12.0 M												393				DH59
JUN 27	15:55	21.0	23.1	110	10RB												382				DH59
JUN 27	21:30	21.0	21.6	115	10RB																DH59
JUN 28	10:00	20.0	19.1	106	10RB																DH59
JUN 29	07:30	21.0	15.1	115	10RB																DH59
JUL 01	11:30	20.0	12.0	102	10RB																DH59
JUL 02	19:00	23.0	11.0	97	10RB																DH59
JUL 04	08:00	16.0	10.3	93	10RB																DH59
JUL 05	09:00	17.0	9.50	89	10RB												326				DH59
JUL 08	11:00	18.0	6.73	85	10RB																DH59
JUL 22	13:30	22.0	3.10	23	10RB												291				DH59
JUL 26	20:00	25.0	2.26	14	10RB												292				DH59
AUG 09	14:05	21.0	0.835	13	10RB												300				DH59
AUG 10	09:00	18.0	0.785	13	10RB												319				DH59
SEP 13	12:30	12.0	0.025	8	WELS X																DH59
SEP 14	10:00	9.0	0.098	4	10RB																DIP
SEP 17	10:00	9.0	0.198	13	10RB																DH59
SEP 24	10:30	12.0	0.550	10	WELS X												382				DH59
SEP 30	12:00	10.0	0.383	8	WELS X												380				DIP
OCT 04	12:00	12.0	0.251	8	WELS X																DIP
OCT 10	12:00	12.0	0.100	5	WELS X												371				DIP
OCT 12	11:35	15.0	0.053	4	WELS X																DIP
OCT 15	10:00	5.0	0.218	22	WELS X												359				DIP
OCT 18	10:00	3.0	0.175	5	WELS X																DIP
OCT 22	09:25	3.0	0.680	5	WELS X																DIP
OCT 25	10:47	2.0	0.808	5	WELS X												385				DIP
OCT 28	12:00	2.0	0.970	4	WELS X																DIP
OCT 30	10:00	1.0	1.07 W	3	WELS X																DIP
OCT 31	09:00	1.0	1.08 W	3	WELS X												492				DIP
																	489				DIP

NOTE : SINGLE VERTICAL LOCATED AT 10RB

DISCHARGE SYMBOL(S): B - ICE CONDITIONS W - DAILY MEAN; ICE CONDITIONS

VERTICAL SYMBOL(S): X - NOT AT REGULAR SINGLE SAMPLE VERTICAL M - A SEDIMENT MEASUREMENT VERTICAL

VALLEY RIVER NEAR DAUPHIN - STATION NO. 05LJ010

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY : MAR-OCT STANDARD ERROR OF MEAN %
1980	MAR-OCT	M-S	204	APR 10	2	OCT 04	593	APR 10	4 200	17.2	17.2	---
1981	MAR-OCT	M-S	357	JUL 04	3	OCT 29	1 210	JUL 04	2 150	6.76	13.0	32.5
1982	MAR-OCT	M-S	72	APR 18	1	OCT 24 *	80.9	APR 18	482	1.97	9.31	47.3
1983	MAR-OCT	M-S	780	APR 25 *	5	SEP 30	19 600	APR 25 *	45 200 *	184	53.0	82.4
1984	MAR-OCT	M-S	209	JUN 26	3	OCT 30	529	JUN 26	4 170	17.0	45.8	75.7

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

VERMILION RIVER NEAR DAUPHIN - STATION NO 05LJ012

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	SUMMARY : MAR-OCT HISTORICAL MEAN LOAD (TONNES)	SUMMARY : MAR-OCT STANDARD ERROR OF MEAN %
1970	MAR-OCT	M-S	2 450	MAY 03	9	JUL 03	12 255	APR 26	109 000	444	444	---
1971	MAR-OCT	M-S	2 510	APR 11	10	OCT 14	7 310	APR 11	43 800	179	312	42.5
1972	MAR-OCT	M-S	3 670	APR 21	8	JUL 19	6 320	APR 22	44 200	180	288	32.9
1973	MAR-OCT	M-S	842	SEP 05	7	MAY 10	934	SEP 05	3 370	13.8	204	43.6
1974	MAR-SEP #	M-S	1 980	MAY 12	17	SEP 05	15 300	APR 20	187 000	---	---	---
1975	MAR-OCT	M-S	4 180	SEP 20	14	AUG 18	55 300	SEP 20 *	189 000	689	301	39.5
1976	MAR-OCT	M-S	4 480	APR 15 *	13	SEP 24	18 900	JUN 14	178 000 *	719	371	32.2
1977	MAR-OCT	M-S	1 580	JUL 12	10	OCT 20	1 310	JUL 12	5 480	22.3	321	35.1
1978	MAR-OCT	M-S	2 480	APR 24	11	OCT 20	3 080	APR 24	31 800	130	297	33.6
1979	MAR-OCT	M-S	2 870	MAY 17	0	AUG 12 *	11 700	MAY 17	101 000	412	310	28.9
1980	MAR-OCT	M-S	588	APR 05	5	MAY 30	1 640	APR 05	4 150	16.8	281	30.3
1981	MAR-OCT	M-S	1 060	MAY 30	6	AUG 06	836	MAY 30	4 840	19.7	257	31.4
1982	MAR-OCT	M-S	1 150	APR 20	0	JUL 04	1 800	APR 18	14 000	57.0	240	31.4

M - MANUAL SAMPLING

S - SEASONAL OPERATION

- PERIOD OF RECORD INCOMPLETE

* - EXTREME FOR PERIOD OF RECORD

WHITEMUD RIVER AT WESTBOURNE - STATION NO. 05LL002

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	SUMMARY : JAN-DEC HISTORICAL MEAN LOAD (TONNES)	SUMMARY : JAN-DEC STANDARD ERROR OF MEAN %
1971	SEP-OCT #	M-MS	42	SEP 21	41	OCT 27	---		---	---	---	---
1972	APR-OCT	A-S	512	APR 17	21	JUL 08	3 520	APR 17	34 000	---	---	---
1973	APR-DEC	A-S	665	JUN 23	8	DEC 14	458	JUN 23	3 030	---	---	---
1974	JAN-NOV #	A-S	1 170	APR 17	4	APR 08 *	12 000	APR 20	87 000 *	---	---	---
1975	JAN-DEC	A-C	2 970	MAY 01 *	7	MAR 11	12 500	MAY 01 *	85 900	238	238	---
1976	JAN-DEC	A-C	280	APR 07	7	MAR 29	3 000	APR 08	31 100	84.8	181	47.5
1977	JAN-DEC	A-C	132	APR 30	5	MAR 17	85.5	JUL 18	3 520	9.66	111	80.5
1978	JAN-DEC	A-C	234	APR 18	6	OCT 26	633	APR 18	10 900	29.7	90.6	57.0
1979	JAN-DEC	B-C	276	APR 23	7	OCT 27	5 280	APR 24	54 900	150	102	40.9

A - AUTOMATIC SAMPLING

B - BOTH AUTOMATIC AND MANUAL SAMPLING

M - MANUAL SAMPLING

C - CONTINUOUS OPERATION

S - SEASONAL OPERATION

MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE

* - EXTREME FOR PERIOD OF RECORD

MANITOBA

WHITEMUD RIVER NEAR KEYES - STATION NO. 05LL005

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : JAN-DEC MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1971	SEP-OCT #	M-MS	14	SEP 21	1	OCT 28 *	---		---	---	---	---
1972	APR-OCT	A-S	511	APR 16	11	OCT 08	1 280	APR 17	13 800	---	---	---
1973	APR-DEC	A-S	183	SEP 05	7	MAY 01	189	SEP 06	1 070	---	---	---
1974	JAN-NOV #	A-S	672	APR 17	5	NOV 22	5 870	APR 17	43 000	---	---	---
1975	JAN-DEC	A-C	526	APR 29	4	FEB 17	1 850	APR 30	13 400	36.6	36.6	---
1976	JAN-DEC	A-C	383	APR 16	1	APR 03	1 190	APR 17	10 500	28.6	32.6	12.3
1977	JAN-DEC	A-C	254	JUL 11	4	MAR 17	211	JUL 13	1 840	4.60	23.2	41.6
1978	JAN-DEC	A-C	333	APR 12	10	MAY 16	829	APR 10	5 680	16.6	21.3	33.3
1979	JAN-DEC	B-C	3 080	APR 26 *	10	OCT 16	31 400	APR 26 *	155 000 *	455	108	80.5

A - AUTOMATIC SAMPLING B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE * - EXTREME FOR PERIOD OF RECORD

WILSON CREEK NEAR MCCREARY - STATION NO. 05LJ801

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1962	MAY-JUN	M-S	8 050	MAY 30	2 150	MAY 31	2 300	MAY 30	2 800	---	---	---
1963	JUN-JUL	M-S	7 000	JUN 10	120	JUN 07	2 780	JUN 10	3 740	---	---	---
1964	APR-OCT	M-S	2 700	MAY 04	5	MAY 25	397	MAY 04	1 430	---	---	---
1965	APR-OCT	M-S	5 000	MAY 05	20	SEP 13	1 840	APR 25	7 080	---	---	---
1966	MAR-OCT	M-S	2 900	MAY 04	17	JUN 05	318	MAY 04	1 360	5.57	5.57	---
1967	APR-OCT	M-S	585	MAY 05	15	JUN 05	70.8	MAY 07	854	---	---	---
1968	APR-OCT	M-S	5 370	AUG 16	36	MAY 15	254	MAY 08	952	---	---	---
1969	JAN-DEC	M-C	14 300	JUN 27	32	MAY 27	10 300	JUN 27	15 800	58.9	37.2	85.1
1970	JAN-DEC	M-C	4 820	MAY 07	0	AUG 22 *	2 240	MAY 17	14 300	58.5	44.3	44.3
1971	JAN-DEC	B-C	14 900	JUN 05	2	AUG 26	13 200	JUN 05	20 300	82.9	54.0	31.3
1972	JAN-DEC	B-C	4 720	APR 26	1	JUL 09	1 150	APR 26	3 020	12.3	45.5	34.0
1973	JAN-DEC	B-C	3 430	JUN 19	5	AUG 18	328	JUN 20	1 100	4.48	36.6	37.1
1974	JAN-DEC	B-C	4 150	APR 26	2	SEP 07	1 350	APR 26	4 920	20.1	36.1	34.5
1975	JAN-DEC	B-C	16 800	SEP 19 *	3	JUL 03	27 000	SEP 19 *	54 000 *	220	59.1	43.0
1976	JAN-DEC	B-C	9 810	APR 13	1	AUG 16	1 990	APR 13	5 450	26.3	55.5	40.9
1977	JAN-DEC	B-C	14 300	JUL 11	4	AUG 19	8 560	JUL 11	14 700	59.9	55.9	36.3
1978	JAN-DEC	B-C	3 620	APR 25	0	AUG 24	522	APR 25	2 700	11.0	51.6	36.3
1979	JAN-DEC	B-C	6 400	MAY 17	1	OCT 05	3 420	MAY 17	10 600	43.4	51.1	33.6
1980	JAN-DEC	M-C	8 890	AUG 04	3	MAY 12	1 430	AUG 21	3 920	16.0	48.4	33.1

B - BOTH AUTOMATIC AND MANUAL SAMPLING M - MANUAL SAMPLING

C - CONTINUOUS OPERATION S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

WILSON CREEK NEAR MCCREARY - STATION NO. 05LJ801

MONTHLY AND ANNUAL TOTAL VOLUMETRIC BED LOAD IN CUBIC METRES

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	YEAR
1964	0	0	0	149	1170	11.0	4.0	2.0	2.0	0	0	0	1338.0	1964
1965	0	0	0	586	275	107	38.0	27.0	1490	27.0	0	0	2522.0	1965
1966	0	0	8.0	141	382	141	38.0	248	4.0	0	0	0	962.0	1966
1967	0	0	0	222	459	23.0	0	0	0	0	0	0	704.0	1967
1968	0	0	11.0	82.0	67.0	63.0	103	165	0	0	0	0	501.0	1968
1969	0	0	0	633	0	1130	57.0	0	0	0	0	0	2010.0	1969
1970	0	0	8.0	178	---	535	229	34.0	115	31.0	0	0	---	1970
1971	0	0	0	1220	1030	118	237	0	0	375	0	0	2984.0	1971
1972	0	0	0	336	237	0	0	0	0	0	0	0	573.0	1972
1973	0	0	0	56.0	103	203	0	74.0	122	181	0	0	749.0	1973
1974	0	0	0	902	214	0	0	0	0	0	0	0	1116.0	1974
MEAN	0	0	2.5	436	394	211	84.2	80.0	158	57.0	0	0	1350	MEAN

BED LOAD MEASURED BY VOLUMETRIC METHOD. MONTHLY DISTRIBUTION ESTIMATED.

MANITOBA

WILSON RIVER NEAR DAUPHIN - STATION NO. 05LJ011

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)		SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MAR-OCT MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1980	MAR-OCT	M-S	515	APR 05 *	2	JUL 14	1 140	APR 05 *	4 480	18.3	18.3	---
1981	MAR-OCT	M-S	68	APR 01	4	JUL 27	54.1	MAY 31	410	1.86	9.89	83.2
1982	MAR-OCT	M-S	594	APR 18	1	AUG 30 *	678	APR 18	4 880 *	19.9	13.3	43.6

M - MANUAL SAMPLING

S - SEASONAL OPERATION

* - EXTREME FOR PERIOD OF RECORD

WINNIPEG RIVER HEAD WATER SEVEN SISTERS POWER PLANT - STATION NO. 05PF057

HISTORICAL SEDIMENT DATA SUMMARY

YEAR	PERIOD OF RECORD	TYPE OF OPERATION	SAMPLED CONCENTRATION MAXIMUM (mg/L)		SAMPLED CONCENTRATION MINIMUM (mg/L)		SUSPENDED SEDIMENT LOAD MAXIMUM DAILY (TONNES)	SUSPENDED SEDIMENT LOAD TOTAL FOR PERIOD (TONNES)	SUMMARY : MEAN LOAD (TONNES)	HISTORICAL MEAN LOAD (TONNES)	STANDARD ERROR OF MEAN %
1977	APR-APR #	M-MS	11	APR 25 *	5	APR 05 *	---	---	---	---	---

M - MANUAL SAMPLING

MS - MISCELLANEOUS OPERATION

- PERIOD OF RECORD INCOMPLETE

* - EXTREME FOR PERIOD OF RECORD

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